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VISCERAL ORGANISMS *

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In previous articles[1] it was shown that connective tissue could be kept *in vitro* for several months in a condition of active life, and that a fragment of heart could pulsate normally for more than one hundred days after its extirpation from the animal; but the quantity of connective tissue maintained in permanent life was very small. It would be important, for the study of many problems, to keep entire organs alive outside of the organism. Therefore I attempted to develop a technic by which a system of organs could be caused to live *in vitro*.

The method consisted of removing aseptically, *en masse*, heart, lungs, liver, stomach and part of the intestines, pancreas, adrenals, kidneys and spleen of an animal, a cat generally being used, and preserving these organs in an incubator at the temperature of 38 C. (100.4 F.), while the lungs were being artificially ventilated.

The operation comprised five stages:

1. A cat was etherized. The skin of the anterior part of the neck, thorax and abdomen was sterilized. Then the esophagus was ligated and severed under aseptic technic. The trachea was cut transversely and a glass tube inserted in its lumen. A catheter was introduced into it as far as the bifurcation, according to the Meltzer and Auer method.

2. The abdomen was opened. The aorta and vena cava were tied and cut in the lower part of the abdomen. The small intestine was cut under aseptic technic. The ureters were severed. Then the aorta and vena cava were isolated from the posterior walls of the abdomen and their posterior branches tied. The peritoneum surrounding the kidney was dissected. The splanchnic nerves were cut. Then the abdominal viscera were wrapped in a Japanese silk towel, thus being completely separated from the abdominal wall. They remained united to the animal by the aorta and vena cava.

3. The thoracic cavity was opened and the mammary vessels were clamped. Then the thorax was severed longitudinally, and the diaphragm completely separated from the thoracic wall. Artificial respiration was established. The anonymous arteries were tied, and the animal died. The superior vena cava and the azygos vein were tied and cut. The vagus, sympathetic and phrenic nerves were severed. All the posterior branches of the thoracic aorta were cut. Generally the heart pulsated weakly and the blood-pressure was very low.

4. Then the thoracic and abdominal viscera, united through their blood-vessels, were removed from the cadaver of the animal, and placed in a tray containing Ringer's solution, at about 38 C. Ordinarily the heart still pulsated slowly and regularly. But the blood-pressure was very low, the arterial pulsations weak and the appearance of the organs very anemic. A careful hemostasis of the small vessels was made. After a few minutes the blood-pressure rose and, in a few cases, became almost normal. Generally a blood transfusion was made from the carotid artery of another cat to the inferior vena cava of the visceral organism. Then the lungs became pink, the blood-pressure was higher than normal and the heart was beating strongly from 120 to 150 per minute. The abdominal aorta pulsated violently, and strong pulsations could be seen in the arteries of the stomach, liver and kidneys. Peristaltic contractions of the stomach and of the intestines were observed. If, a few minutes after the transfusion, the pressure was still above normal, a quantity of blood was allowed to flow from the lower part of the abdominal aorta. Then, the appearance of the viscera was the same as the viscera of a normal animal.

5. The visceral organism was placed in a tin box filled with Ringer's solution, covered with thin Japanese silk and protected by a glass cover. The tracheal tube and the esophageal tubes were fastened to proper openings in the anterior wall of the box. Artificial respiration was carried on by a continuous current of air interrupted ten times per minute. Dr. Meltzer kindly examined the respiratory conditions in these experiments, showing me a method for obtaining a proper ventilation of the lungs. He has contributed, in a large measure, to the rapid success of these experiments. Water or food could be injected into the stomach through the esophageal tube. The intestine was pulled through a glass and rubber tube fixed through the posterior wall of the box. The end of the intestine was fixed by a circular suture to the edge of the rubber tube, an artificial anus being made. The box was then put into an incubator at a constant temperature of about 38 C.

It was then observed that the viscera were living in an apparently normal condition. The pulsations of the heart and the circulation of the organs were normal. The intestine emptied itself through the artificial anus by regular peristaltic contractions. When the intestine was empty, bile and intestinal juices were evacuated. In an experiment in which the stomach was full of meat at the time of death, normal digestion occurred. After five or six hours, hyperemia of the peritoneum of the intestine appeared. It seemed as though peritonitis developed progressively and in some cases the intestine was paralyzed. Nevertheless, the circulation remained

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Carrel, Alexis: Rejuvenation of Cultures of Tissues, THE JOURNAL A. M. A., Nov. 11, 1911, p. 1611; Jour. Exper. Med., 1912, xv, 516. Pozzi, C. R.: Bull. de l'Acad. de méd., Paris, June, 1912.

excellent and a section of a small mesenteric artery produced an abundant hemorrhage.

Some of the visceral organisms died almost suddenly after three or four hours, but most of them were still in normal condition ten hours and even twelve and thirteen hours after the death of the animal to which the organs belonged. The death of the visceral organism was announced by some irregularities in the pulsations of the heart, which were also weaker. Then the heart stopped suddenly.

In the last experiment the death of the visceral organism occurred thirteen hours and fifteen minutes after the death of the cat from which it originated. It is probable that the duration of life will be increased by certain modifications of the technic; but, as it is, a visceral organism can profitably be used for the study of many physiologic and chemical problems.

Sixty-Sixth Street and Avenue A.

A STUDY OF THE CAUSES OF DEATH IN ONE HUNDRED PATIENTS WITH HIGH BLOOD-PRESSURE *

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In a study of the subsequent histories of some 500 persons showing a systolic blood-pressure of 170 or over, seen in my consulting practice or in that of my father during the past eight years, it was found that approximately 150 patients were known to have died. For 100 of these, accurate information as to the date of death, the exact cause of death, and the important later symptoms was obtained. The latter data I owe largely to the prompt and cordial cooperation of the family physicians of these patients in answering my somewhat numerous inquiries, and I desire here to express my appreciation of their assistance. A study of this character, of an essentially chronic group of diseases, is possible only in private practice, among patients of the intelligent classes; it is impossible with any hospital material, however large. Many of the problems regarding the causation and development of the so-called degenerative diseases of later life are to-day a fruitful field for truly scientific investigation by the general practitioner.

From the very nature of the investigation, the exact determination of the primary disease underlying the state of high arterial pressure in each case is impossible, and the clinical diagnosis must be a matter of personal opinion based on a consideration of all the symptoms and signs during life. An ideal study would include a complete autopsy of each case; but for the purposes I had in view, 100 cases of hypertension followed from the first symptom to death, with notes of my personal observations, are of more value than a like number of hospital autopsies. My personal impression, gained in part from such a hospital experience of a one-sided kind, the patients being of the lowest social class, has always been that the most frequent mode of death in chronic nephritis is by gradual cardiac insufficiency. My desire to obtain exact information on this point among the well-to-do, and further to determine, if possible, whether the initial symptom or the prominent early symptoms associated with high blood-pressure are indicative of the probable death to be expected and, therefore, to be guarded against, was my motive in undertaking the analysis. It is clear from the character of the material studied that the less chronic and more progressive types of nephritis associated with marked general edema will be inconspicuous as contrasted with their frequency in a hospital service.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

CLASSIFICATION BY CLINICAL DIAGNOSES

My clinical diagnoses of the primary underlying diseases of 100 patients were as follows:

Chronic nephritis (no attempt to differentiate anatomic types)	79
Diabetes	7
General arteriosclerosis	4
Coronary sclerosis	4
Aortic regurgitation (possibly syphilitic aortitis)	2
Aortic aneurysm (probable)	1
Primary myocardial disease	1
Paroxysmal tachycardia (with secondary myocardial insufficiency)	1
Hypertension without nephritis, evident arteriosclerosis, or cardiac disease	1
Total	100

In all the cases of diabetes, chronic nephritis or some manifestation of arterial disease had supervened on a preexisting diabetes. This, of course, is common; and the figure is almost identical with my statistics of four deaths from chronic nephritis among fifty fatal cases of diabetes observed within the same period. Out of 220 diabetics, again, fifty showed high blood-pressure—another evidence of the frequent association of cardiovascular and renal disease with diabetes in elderly individuals. In the younger patients with pure diabetes, terminating so frequently in coma, high blood-pressure is not observed; diabetes, therefore, stands in no direct causal relation to the high blood-pressure, but in individuals past middle life it seems to predispose to the development of those changes which produce hypertension. Elliott has reported similar findings, which contradict the idea of Potain that diabetes is a hypertensive disease.

In the entire series, pericarditis was definitely diagnosticated once and suspected only one other time. Since pericarditis is found at autopsy in such patients distinctly more frequently than this it is highly probable that it was overlooked. Of the four cases of arteriosclerosis without proof of nephritis, in one there was a pressure of 170, and in the other three it was over 200. It is possible that these patients had contracted kidneys, for as a rule general arteriosclerosis is unassociated with increased blood-pressure. On the other hand, many of the younger individuals in this group with evidences of severe chronic nephritis showed the most extensive and extreme peripheral arteriosclerosis. Of the five patients below 40 years of age, however, only two men, respectively 32 and 36 years old, had arterial thickening; but in them it was extreme. In the non-fatal cases of the larger group of 500 are a number of patients in whom high blood-pressure and associated cardiac hypertrophy are the only objective evidences of disease. The latter are largely women. The single similar case in this series of deaths was a woman, aged 74, who had had high blood-pressure for six years, associated only with neuralgic pains and mental depression. Her pressure ranged between 190 and 200. She died of pneumonia, having developed some symptoms of failing heart during the months preceding her death.

SEX AND AGE INCIDENCE

Among 100 cases, 74 were men, 26 women. Of the women, 22 were or had been married and four were single.

The ages at death were known in 114 cases. They ranged as follows:

Below 20 years,	2 cases, about	2 per cent.
20-29 years,	0 cases, about	0 per cent.
30-39 years,	3 cases, about	3 per cent.
40-49 years,	24 cases, about	21 per cent.
50-59 years,	39 cases, about	34 per cent.
60-69 years,	32 cases, about	28 per cent.
70 and over,	14 cases, about	12 per cent.
	114	

The youngest patient in the group was 16 years old, the disease following two years after a mild scarlet fever. The oldest patient was a man of 80, in whom arteriosclerosis and retention from a hypertrophied prostate seemed to be causative factors.

ETIOLOGY

I have not attempted a study of the etiologic factors, since I propose to do this for the whole group of 500 cases. One fact of interest may, however, be mentioned here. In only one of the twenty-six women did chronic nephritis originate during pregnancy. The group includes another case of great etiologic interest—that of a physician of 44 who, while attending a confinement case in the country, was obliged to spend forty-eight hours in a freshly painted room. He developed lead colic immediately and after two weeks lead neuritis, which was progressive; and he came to me on account of this. His urine had been found normal in a life-insurance examination made just previous to his illness; albumin appeared a month after the wrist-drop, and I saw him at the end of one year. He then showed extensive muscular atrophy, hypertrophied heart with accentuated aortic second sound, a systolic blood-pressure of 180 and very slight arteriosclerosis; the specific gravity of the urine was 1.012, with a large amount of albumin and a few hyaline casts. The lead line was still visible on the gums. His red cells showed marked granular degeneration. One week after my examination he went into sudden coma and died in thirty-six hours.

CLASSIFICATION OF 100 CASES BY CAUSES OF DEATH

Of the 100 cases, the immediate causes of death were as follows:

Gradual cardiac insufficiency	29
Uremic convulsions or sudden coma	15
Chronic uremia	20
Uremic psychosis	1
Cerebral apoplexy	14
Acute edema of the lungs	4
Angina pectoris	3
Sudden death (unclassified)	4
Progressive anemia	2
Acute pneumonia	4
Unrelated diseases	4
	100

In the above classification I have attempted to determine what was the most important cause of the fatal issue. Very frequently, cardiac insufficiency was followed by acute or chronic uremia, or was accompanied by anemia in a few cases; but in all such instances the death was recorded as due to cardiac insufficiency. Similarly, when uremic convulsions supervened on a chronic uremic state, the death was credited to the latter. When, however, cardiac failure developed during a terminal uremic state, death was held to be by chronic uremia. It is quite possible that the fifteen cases of more acute uremic manifestations include a number in which autopsy would have shown apoplexy as the real cause. Under acute edema of the lungs I have classed only cases of those patients who died of sudden suffocative pulmonary edema, without marked symptoms of preceding heart weakness. In addition to the three patients who died of anginal attacks, a fourth was characterized throughout by equally severe attacks which persisted until the day of death, but the fatal issue was brought about by gradual heart failure with anasarca and dropsical effusions. Four patients developed severe anemia; of these, one died of uremic convulsions and one of gradual heart failure.

Of the other two in whom death was due to anemia and exhaustion, one was a girl of 19 who had had acute nephritis during diphtheria at 9. The original attack was characterized by profuse hematuria. There were frequent recurrences of hematuria, with fever, scanty urine, headaches, gastro-intestinal disturbances, edema of nephritic type, and, after menstruation was established, increasingly severe uterine hemorrhages. When seen four months before death she showed a double aortic murmur, with a greatly hypertrophied heart; a blood-pressure of 200 systolic, 125 diastolic; low-gravity urine with a large amount of albumin, and loaded with granular and hyaline casts. The eye-grounds showed old hemorrhages. In this case a hemorrhagic tendency seemed to be manifest throughout. There was no history of a "bleeder" family, so that the tendency must have been associated with the nephritis and endocarditis. There was no evidence of bacterial endocarditis, but no blood-cultures were made.

The other patient dying of anemia is a striking example of a type which I think is frequently overlooked, though unquestionably rare. She was a widow, aged 55, with a strong family history of cardiovascular disease. Six and one-half years before her death she had had a supposed "nervous prostration;" one year later she had an attack of dizziness and aphasia lasting one hour. From then until one year before death her blood-pressure ranged between 210 and 230 systolic, with a moderately hypertrophied heart, an aortic systolic murmur and moderate arteriosclerosis. The urine was always normal in quantity and specific gravity, with an occasional trace of albumin and a few casts until the last two years, when the specific gravity fell. The only symptoms were lassitude and slight dyspnea on exertion. Eight months before death she developed nausea and anorexia, which became extreme, with attacks of sore mouth and of diarrhea after eating. She showed complete achylia and an increasing secondary anemia. She gradually became emaciated, becoming more and more sallow and weak, and her blood-pressure fell to about 170, where it remained until death. She died of anemia and inanition. At no time was the blood morphology that of pernicious anemia, and there was no evidence at all of carcinoma. This type of death, by progressive anemia, occurs from time to time, and at autopsy only unsuspected contracted kidneys are found to account for it.

The uremic psychosis occurred in a man of 60, with a history of recurring gout for many years and evident chronic nephritis with a blood-pressure of 200, hypertrophied heart and moderate arteriosclerosis. He had no symptoms until five months before death, when he began to show loss of control and memory; one month before death, following a fresh attack of gout, he developed

active delirium with delusions, constant incoherent talk, and complete disorientation, without much restlessness and no twitching or other usual uremic symptoms. He died in this state. Whether the condition was one of rapid organic dementia or of uremic insanity it is difficult to determine.

RELATION OF LENGTH OF ILLNESS, INITIAL SYMPTOM AND PROMINENT EARLY SYMPTOMS TO CAUSES OF DEATH

A computation of the duration from the earliest recorded symptoms which could be associated with high blood-pressure or chronic nephritis to death, in all those cases in which it was possible, showed no striking differences between the various groups (Table 1).

TABLE 1.—DURATION OF ILLNESS IN RELATION TO CAUSES OF DEATH

Causes of Death	Cases	Duration. Average, Yrs.	Mos.	Longest, Yrs.	Shortest, Yrs.	Mos.
Cardiac insufficiency	26	3	10	10	.	4
Acute uremia	14	3	..	8	.	5
Chronic uremia	21	3	1	7	.	4
Cerebral apoplexy.....	14	4	6	11	.	11
Angina pectoris	3	4	3	6	3	6
Acute edema of lungs...	4	3	..	4	1	8

A careful classification of the cases grouped under each cause of death with reference to the initial symptoms did not show much of importance, as the initial symptom in many cases was not readily related to the time of development of the high blood-pressure or of the evidences of nephritis. A somewhat larger proportion of the patients who died of cardiac insufficiency (twelve out of twenty-nine) began with dyspnea on exertion, as contrasted with the other groups. Two of the patients who died of acute uremia, five of those of chronic uremia, and two of those of apoplexy began with headaches; whereas only one of the much larger group of cardiac insufficiency did so. Paroxysmal dyspnea was the initial symptom in five patients dying of cardiac insufficiency and in one that died of edema of the lungs, but in no others. Polyuria as an initial symptom was noted by three of the patients dying of chronic uremia, two dying of apoplexy, and one dying of heart failure. Neuralgic pains and neurasthenic symptoms, physical or mental, came first in a few cases. Loss of flesh, nose-bleed, hemoptysis, and gastro-intestinal disturbances occurred in a still smaller number.

The entire 100 cases have been tabulated under the prominent early symptoms, and simultaneously subdivided into the groups already given under causes of death (Table 2).

Several facts of real significance for prognosis appear from a study of these symptoms which, as I have indicated by the double line in the table, seem to fall roughly into two classes, the first rather definitely cardiac symptoms and the second symptoms which must be interpreted either as toxic or as due to localized vascular disease in the brain. Out of forty-eight patients showing dyspnea on exertion as a prominent early symptom, twenty-four died of cardiac insufficiency; or, from the other standpoint, of twenty-nine patients dying of cardiac insufficiency, twenty-four complained of definite dyspnea on exertion early in their disease. This proportion is higher than that found in any other group. The same relation holds good for paroxysmal dyspnea; thirteen of the twenty-four patients exhibiting this symptom also died a cardiac death. In this group one also sees that two of the four patients who died of edema of the lungs had attacks of sudden dyspnea, and one other had attacks of recurring edema of the lungs. Fifteen patients had early anginoid pain on exertion; only two of these died of angina. Of eleven patients showing edema of the legs in the early stages of illness, seven died of insufficient hearts, none of uremia.

On the other hand, out of thirty-two patients who noted polyuria or nocturnal frequency of urination at the beginning of their illness, eleven died of chronic and seven of acute uremia, while only eight died of insufficient hearts, though this was a much more frequent cause of death for the whole group. The relationship of certain forms of headache and subsequent uremia is equally striking. Eight out of fifteen patients complaining of headache died of chronic uremia, two of acute uremia, two of apoplexy and only one of heart failure. The distinctive early-morning headache of nephritis, passing off toward noon, or intense and persistent headache, seemed to be the types associated with the most serious outlook. Many of these patients suffered from past migraine, which was not considered in making these tabulations. Migraine, of course, has no such prognostic significance. The majority of these patients recognized the change in the character of their headaches.

Early ocular symptoms also appeared preponderantly in those patients who died of chronic uremia (five out of eight in all). Early hemiplegic attacks occurred thirteen times, four times in patients who afterwards succumbed to apoplexy. Of the others, four died of chronic and two of acute uremia, two of insufficient hearts, and one of anemia. An early uremic convulsion was noted once in the cardiac group and once in each uremic group. Marked loss of flesh occurred fourteen

TABLE 2.—THE RELATION OF PROMINENT EARLY SYMPTOMS WITH HIGH BLOOD-PRESSURE TO CAUSES OF DEATH

Symptoms: Dyspnea on Exertion	Paroxysmal Dyspnea	Edema of Lungs	Anginoid Pain	Edema of Legs	Polyuria	Headache	Visual Disturbances	Hemiplegic Attacks	Loss of Flesh	Neurasthenic Symptoms	Causes of Death	No. of Deaths
24	13	1	5	7	8	1	1	2	2	1	Gradual cardiac insufficiency.....	29
7	2	0	1	0	7	2	1	2	3	3	Uremic convulsions or sudden coma.....	15
5	1	2	3	0	11	8	5	4	5	1	Gradual uremia	20
6	2	0	2	2	2	2	1	4	0	4	Cerebral apoplexy or its results.....	14
1	1	0	2	0	0	0	0	0	0	0	Angina pectoris	3
2	2	1	1	1	1	0	0	0	1	1	Edema of the lungs.....	4
3	3	0	1	1	3	2	0	1	3	6	Other causes	15
48	24	4	15	11	32	15	8	13	14	16		100

times, and five of these patients died of chronic uremia.

So far, then, as conclusions may be justified from a study of a group of one hundred cases so selected, the following seem reasonable:

1. The early occurrence of dyspnea, whether on effort or of the paroxysmal type, in a patient with high blood-pressure indicates marked danger of cardiac insufficiency. In such patients the disease must be treated as a cardiac disease, especially by safeguarding methods.

2. Anginoid pain, even when of marked severity, occurring on exertion in persons with high blood-pressure, does not make the prognosis worse than do other cardiac symptoms. Of course, every precaution must be taken to prevent overexertion. The majority of these patients will not die in an anginal paroxysm.

3. Complaint of polyuria, nocturnal frequency, marked headache, or of visual disturbances by a patient with high blood-pressure, especially if that patient be below 50 years of age, should make the prognosis very guarded, for uremia is a frequent mode of termination in such cases.

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ABSTRACT OF DISCUSSION

DR. L. F. BARKER, Baltimore: I should like to emphasize, and just as strongly as has Dr. Janeway, the relation of many of these cases with high arterial pressure to disease of the arteries themselves. If you will recall the statistics given you will note that 75 per cent. of the patients had chronic renal disease, 7 per cent. had diabetes, 4 per cent. had an evident arteriosclerosis and 4 per cent. had coronary sclerosis. It seems to me probable that many of the renal cases were really atherosclerotic in origin. It is uncommon in these cases to find a high grade of arteriosclerosis of the palpable peripheral blood-vessels. Recent pathologic studies have revealed changes in the small arteries which supply the internal organs, especially the kidneys, brain and heart. These cases we usually refer to as instances of chronic nephritis with high blood-pressure. In all probability most are due to arteriolar disease, not to disease of the larger arteries. Indeed, one might be entirely misled by feeling the larger arteries. Some of the cases were doubtless instances of chronic (diffuse) glomerulonephritis, as was the one referred to by Dr. Janeway which followed scarlet fever.

Streptococcus toxins can cause an acute inflammation of the glomeruli, which may go on to a chronic diffuse glomerulonephritis. In the cases of hypertension that terminate fatally, myocardial insufficiency, with or without uremia, is a common end-phenomenon. Many of us fail in the treatment of these cases of chronic renal disease, cases with high blood-pressure, because of our failure to direct the treatment more toward strengthening the heart muscle. There should be enjoined rest in bed, a limited diet, cardiac tonics and digitalis (even with high blood-pressure) as soon as signs of myocardial insufficiency set in.

What I have just said leads me to sound a note of warning against the indiscriminate use of vasodilators in these conditions, and especially against the excessive use of nitroglycerin, the nitrites and allied drugs. I think that more harm than good comes from the use of vasodilators in the cases we are now discussing. Over and over again I have seen, as the result of reducing the blood-pressure, a sudden collapse, the patient exhibiting anuria, dyspnea and signs of uremia. Some of the patients can be saved, or could have been saved, by stiff doses of digitalis or strophanthus. These patients must have a high blood-pressure in order to give the organs a proper blood-supply. The patient is exposed to two great dangers: that of too low blood-pressure on the one hand and too high blood-pressure on the other. In rare instances with a very high blood-pressure, one may cautiously attempt to reduce this pressure because of the danger of cerebral apoplexy; even here, as a rule, more is accomplished by rest, purgation and diet than by vasodilators.

DR. LOUIS FAUGERES BISHOP, New York: I believe that the treatment of arteriosclerosis and the proper understanding of it, and the advances in its treatment in our endeavors to help these patients, must be founded on pathologic physiology and chemistry and not on pathologic anatomy alone. I believe that there are many cases due to chemical damage produced by amino-acid poisons in particular, an auto-intoxication. Dr. Janeway has dwelt on the terminal cases. What can we do for extreme cases? I do not do any work now in medicine except deal with patients with heart disease and arteriosclerosis. I am sure that in at least three cases I have saved lives and restored the patients to a fair degree of safety by abstracting about 1 quart of blood by phlebotomy, followed by a regimen. There is too much blood in the arteries and veins; an auto-intoxication exists and apoplexy threatens; something must be done quickly in order that life may be saved. In fact, these patients are often so well satisfied that they return and ask to have the operation repeated. These are the very high blood-pressure cases.

I differ from most authorities regarding exercise in the treatment of these cases. I am a firm believer in exercise. The condition of the heart muscle, as Dr. Barker has just said, is the key to the situation and the question arises, especially in cases of advanced arteriosclerosis, how we can improve the condition of the heart muscle and get it in good shape. I do not believe that we can improve the heart muscle by rest in bed. Mackenzie and others tell us that the heart muscle fails in several ways. If there is a failure in contractility, then the muscle should be given a rest; if there is a failure in its tonicity and general toxic condition, improvement follows on properly regulated exercise. As a result of my experience with cardiac cases I believe that exercise is best for almost every heart case! I think that more patients die because of being kept in bed and quiet than from injudicious exercise. The regulation of exercise is an art that is acquired by experience.

It has been my practice for a number of years in attempting to get rid of the intoxication to give castor oil, a proteid diet and outdoor exercise. The patients to whom I am referring are those that I have seen in private practice and not in my hospital work. I always divide the cases into certain stages. The first stage is the diet and castor oil stage. As time goes on another stage is reached which I call the digitalis stage. This is the stage of failing blood-pressure, in which there is a tendency to a secondary low blood-pressure and which means that the blood-pressure which measures high is relatively low; 200 may be the proper blood-pressure for some individuals who have carried 220 or even 250; but less than that is for them low pressure.

DR. EDWARD E. CORNWALL, Brooklyn, N. Y.: High blood-pressure as a symptom does not ordinarily call for direct treatment, for it is mostly a conservative procedure. The regular treatment of this symptom should consist, as far as possible, in the removal of the cause, and only exceptionally should symptomatic treatment by vasodilators be given. The exceptional cases are those in which accidents to the cardiovascular apparatus are urgently threatened by the high blood-pressure, and cases of coronary sclerosis with symptoms; the latter especially are benefited by nitroglycerin in sufficient doses. In the great mass of cases of arteriosclerosis, toxemia and nephritis, arteriodilators do harm. In these cases we have one means of reducing the blood-pressure which is rational and often exceedingly effective; it is the removal, as far as possible or advisable, by an antiputrefactive diet, of the factor of putrefaction toxemia of intestinal origin which is prominently present in nearly every case with high blood-pressure. This is the primary, even essential, treatment of cases of cardiovascular disease with high blood-pressure, and it is often rewarded by remarkable improvement in the symptoms. That intestinal putrefaction produces substances directly capable of raising the blood-pressure has recently received apparent proof from experiments by Dale, who found that a rise of blood-pressure from 110 mm. to 260 mm. followed

intravenous injection of a substance isolated by Beyer from putrid meat which has a chemical composition somewhat similar to that of epinephrin.

Dr. M. Howard Fussell, Philadelphia: I protest against the remarks of Dr. Bishop. He says that cases of heart failure due to high blood-pressure call for exercise and not for rest and I fear some of us will infer that he means that a patient with a failing heart from a high blood-pressure should be placed at once on graduated exercise. I have no doubt that we who treat so many of these cases are united in our opinion with regard to the care of these patients. I do not doubt that Dr. Bishop and I would treat any given case exactly alike. I feel that the best thing to do first is to place these patients at rest; as a result of such rest there results promptly a fall in the blood-pressure. After a time there is instituted, and very necessarily, a graded exercise.

Dr. Nathaniel Bowditch Potter, New York: Some years ago I found that patients with high blood-pressure got better or worse according to what they were told of the figures, and I learned that too frequent blood-pressure estimation, especially in private practice, depressed the patients, just as frequent urine examinations and the knowledge of the increase of albumin and casts.

Dr. Theodore C. Janeway, New York: It seems to me quite probable, as Dr. Barker has stated, that the underlying condition in many of these patients is disease of the small arteries. Are there any others? I do not know. The effect of treatment seems to make it clear that this entire group will be resolved into parts. Two groups at least seem distinct, that consisting of patients who die with failing heart, and that consisting of patients who die of uremic manifestations. Then again there is the patient with an intermittent high blood-pressure. In some cases there is a return to the normal blood-pressure and this may remain for years. In these patients, anatomic lesions of the small arteries are unlikely.

I should like to corroborate what Dr. Barker and Dr. Cornwall have said regarding limitations to the use of nitroglycerin and its applicability only in those cases in which sudden dangerous accidents occur. In cases in which the coronary artery is threatened with complete obstruction, the good results may be from its local effects, opening up the paths that have been narrowed, not from its lowering the general blood-pressure. One must not consider apoplexy in these patients due to rupture of a vessel by the high pressure. From our autopsy experience we know that many who die of apoplexy, of hemiplegias, have thrombotic softening and not hemorrhage. I am in accord with Dr. Fussell as to Dr. Bishop's remarks. It should be remembered that there are many cases of severe myocardial insufficiency which require absolute rest. When later we begin to order for those patients gradual exercise, it requires good judgment. The use of the high-frequency current has usually seemed to me a method of "bleeding" the patient in the metaphorical sense. I have seen patients just after treatment, whose pressures were said to be greatly reduced, and my reading has been about what it was before. There are probably occasional patients who are really benefited, and others in whom it acts as a psychotherapeutic measure. If one lowers the blood-pressure a considerable amount, as Dr. Barker has said, the patient may develop anuria, failure of the capillary circulation through important organs, and become seriously ill. Not lowering the blood-pressure, but safeguarding the circulation, is the aim of treatment.

Importance of a Rectal Examination.—Before you make a diagnosis in any form of rectal trouble, it is absolutely essential that you should make a thorough examination of the part. I note that very often through so-called motives of delicacy—though what that means I confess I do not know—doctors tell us that patients refuse examination, and that therefore the doctor has had to treat the case under very disadvantageous circumstances. But if you will take my advice you will not treat any rectal disease unless you are permitted to make a thorough and complete examination.—Harrison Cripps in *Clin. Jour.*

DUODENAL MEDICATION OF IPECAC IN THE TREATMENT OF AMEBIC DYSENTERY *

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In East India and other oriental countries, ipecac has been regarded for a century or more as the great remedy for dysentery. In Europe and America, treatment by ipecac had fallen into disuse until quite recent times, on account, first, of its emetic action, second, of the deterioration and adulteration of the drug, and third, of improper methods of administration. The revival within the past decade of the use of this drug as a remedy for dysentery was largely due to Patrick Manson, whose extensive experience in the tropics thoroughly convinced him that it was an efficient remedy.

Besides Manson, a number of other authorities attest the value of ipecac. Notably among these are Woodhull, Major Rhoades, Simon, Dock, Freund, Barker and others. Woodhull[1] refers to it as the one remedy which, if properly used, is as conspicuous in dysentery as quinin is in the malarial fevers, and urges medical officers to use large doses of it in all types of amebic dysentery. He further adds that he has not known the treatment to fail. Major Rhoades, U. S. Army, regards ipecacuanha and quinin as the sovereign remedies, the former by the mouth, the later by the rectum, and maintains that, if properly administered, the drug will give brilliant results in the majority of cases. If properly administered, it is considered by S. K. Simon almost a specific for amebic dysentery. He asserts that the amebas vanish almost at once.

It may be interesting to note that our present attitude toward the ipecac treatment of dysentery is very much the same as it was 150 years ago. The following quotation from the United States Dispensatory, 1854, will serve to illustrate.

> John Helvetius, grandfather of the celebrated author of that name, having been associated with a merchant who had imported a large quantity of ipecacuanha, employed it as a secret remedy, and with so much success in dysentery and other bowel affections that general attention was attracted to it, and the fortunate physician received from Louis XIV a large sum of money and public honors, on the sole condition that he should make the remedy public.

Sixty-five years ago the statement was made, in Watson's "Practice of Physic," that "subsequent to bleeding, the remedy from which the greatest benefit is derived is ipecacuanha." It has been repeatedly alleged that ipecac in small doses is a good prophylactic against liver abscess. Indeed Calvert, professor of materia medica in the Calcutta Medical School, goes so far as to state that he believes ipecacuanha will cure hepatitis following dysentery, provided there is no suppuration. In this connection it is interesting to note a statement made by Pilgrim,[2] superintendent of the Calcutta General Hospital.

> In the past four years over 200 cases of dysentery have been treated and eighty-two cases of hepatitis. During the past three years since ipecac has been systematically employed not a single case of dysentery has been complicated by hepatitis, while every case of hepatitis has recovered without suppurating. The average number of operations for liver abscess has fallen from ten or twelve to three or four in the year.

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* Read in the Symposium on Antiseptics and Germicides in the Sections on Pharmacology and Therapeutics and Preventive Medicine and Public Health of the American Medical Association at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Woodhull: Therap. Gaz., April 5, 1902.
2. Pilgrim: Brit. Med. Jour., 1910, ii, 2039.

There is a diversity of opinion as to the proper method of administration, and yet, according to the experience of all who have employed ipecac, the proper method is insisted on. Buchanan's[3] experience in Bengal has been very favorable in those cases in which he employed large doses. Small doses, from 3 to 5 grains in pills, are utterly useless. His directions are as follows:[4]

Castor oil should be given the night before, and, after the bowels have moved in the early morning, tincture of opium, followed in fifteen or twenty minutes by ipecacuanha in a dose of 25 or 30 grains. The patient should lie undisturbed for four or five hours. If vomiting occurs or if the stool has not much changed for the better within twenty-four hours, ipecacuanha is to be repeated in half an hour.

Woodhull employs a somewhat similar method, but uses counter-irritants over the epigastrium, such as iodin or mustard. He says:

The stomach must be empty and the patient recumbent. About twenty minutes before giving the ipecac, it would be well to paint the epigastrium with tincture of iodin, or apply a mild sinapism, though this may be omitted. Ten or fifteen minims of tincture of opium may be given to be followed in ten or twelve minutes by 15 to 30 grains of ipecac. Nothing should be given by the stomach for at least four hours and the recumbent posture should be strictly maintained. If the first dose is rejected, it should be repeated after a short interval. Ipecac controls capillary hemorrhage and before confirmed inflammation sets in, capillary leakage is the feature of dysentery; hence its favorable effects in this disease.

Major Rhoades' method of treatment is as follows:[5]

The patient, having received his preliminary purge and all food and water having been proscribed for six hours, is given a hypodermic injection of morphin sulphate, ¼ grain (0.016 gm.) to prevent vomiting. At the same time an ice-bag filled with finely cracked ice and protected with two thicknesses of gauze is placed over the pit of the stomach and another over the anterior surface of the neck. The patient is directed to lie flat on his back, a third ice-bag being substituted for a pillow and placed under the nape of the neck. The patient is cautioned not to speak or move for four hours. One-half hour after the morphin injection, the ipecacuanha is administered in eight to twelve pills of 5 grains each. The patient is encouraged to resist by mental effort the desire to vomit and to try to sleep. When the saliva begins to flow freely, he should be cautioned not to swallow it. Unless this is done, vomiting will almost certainly occur. If vomiting does occur within an hour after administering the dose, it should be repeated when the stomach has become quieted. After six hours a small glassful of iced ginger ale or a cup of tea is given, followed by frequent feedings of beef-tea and albumin-water late into the night. The following morning, the dose of ipecacuanha is repeated and again on succeeding days until copious, pultaceous, brownish-yellow stools appear and rapid amelioration of acute symptoms gives evidence that healing had set in. This being the case, the dosage of the ipecacuanha is reduced to a 5-grain pill or capsule three times daily, and continued for about a week longer; the diet is increased, and at the same time lavage of the colon is begun.

Patrick Manson[6] has still another means of administration:

The patient must abstain from food and drink for at least three hours. Twenty drops of laudanum are then given, and a mustard poultice applied to the epigastrium. About twenty minutes later, 20 to 30 grains of powdered ipecacuanha root, either in bolus or in a small quantity of water, are administered. The patient must then lie flat on his back without a pillow, and endeavor to avoid vomiting; he may neither eat, drink, speak nor move for three or four hours. If vomiting occurs soon after the powder is given, in an hour or two a second dose may be administered. After three or four hours, small quantities of food may be given during the succeeding six or eight hours, when the drug is to be repeated. Guided by its effects, the use of ipecacuanha is kept up for two or three days. A great drawback to this treatment is the severe vomiting which sometimes ensues; but, notwithstanding this drawback, there can be no question of its value in some cases, although in others it appears to do little or no good. If the ipecacuanha produces a large loose, bright yellow stool, improvement is nearly sure to follow.

The action of ipecac on the ameba has not been definitely determined. Vedder, U. S. Army, made some bacteriologic experiments[7] and showed that the *Bacillus dysenteriæ* was inhibited by a 2 per cent. fluid extract of ipecac. While the amebas in a 5 per cent. bouillon culture were at all times killed by a fluid extract of ipecac in a dilution of 1/50,000, sometimes they were killed by a higher dilution of 1/200,000. Two varieties of amebas were used, but not *Entamœba coli* or *Entamœba dysenteriæ*. He insists that ipecac containing the proper amount of emetin should be used and condemns its use in cases of the bacillary form of dysentery. Dr. H. A. Freund made some experiments with ipecac on the live amebas from the stools in the warm stage. He concluded that it had a direct destructive action on the amebas and besides this effect it acts apparently as a cholagogue and sometimes as a purgative. Under the treatment, the ameboid motion of the parasites ceases in a few hours and disappears completely in two or three days.

From this cursory review of the literature one is forcibly impressed with the fact that ipecac has a definite action on the amebas, and, if properly administered, is undoubtedly the best remedy at our command. What is generally conceded, however, to be the proper method of administration proves such a formidable procedure that the treatment is wholly impracticable.

In an attempt to overcome the many objectionable features of the methods in vogue, a simple, rational and more practical method has suggested itself to me, in the use of the Einhorn duodenal tube. This tube was designed for duodenal aspiration and alimentation and it will be found an ideal instrument for the treatment of dysentery with ipecac. For a complete description of the duodenal tube and the method of its introduction, the reader is referred to the original article by Max Einhorn.[8] As a rule patients have little difficulty in swallowing the tube and comparatively little discomfort afterward. An examination of the stomach contents, to determine the presence of free hydrochloric acid, will help determine whether the tube has passed through the pylorus, which is done by aspirating a little of the fluid and testing with congo paper. After each aspiration the tube is washed out with a little water and clamped. When it has entered the duodenum, the aspiration is slower and more difficult and the fluid is alkaline and bile-stained. Einhorn also recommends a milk test. The patient is given a few swallows of milk and the stomach is then aspirated. If milk is absent, the capsule is in the duodenum. The time required for the capsule to pass into the duodenum varies from one to five or more hours.

Ipecac is especially indicated in acute cases and in the exacerbations of the chronic forms. It is said by some clinicians to have practically no effect in cases in which the symptoms are due to a mixed infection.

In spite of the fact that all my cases were extremely chronic and refractory, three of them being complicated

3. Buchanan: Practitioner, December, 1897.
4. Sajous' Annual, III, 45.
5. Modern Treatment, p. 149.
6. Manson: In Gibson's Practice of Medicine, 1901.
7. Vedder: Bull. Manila Med. Soc., March, 1911.
8. Einhorn, Max: Med. Rec., Jan. 15, 1910.

with liver abscesses, the results were fairly striking, but the cases are reported more for the purpose of emphasizing the method than the results of treatment. Powdered ipecac was employed either suspended in mucilage of acacia or macerated in plain warm water. A 2-ounce metallic syringe was used to instil the remedy which represented from 1 to 2 drams of ipecac to the dose in a 6-ounce mixture. Unquestionably much of the success of treatment depended on the quality of the drug. Those cases which required more than three or four doses and in which the amebas reappeared in the stools were treated by a drug of an inferior quality. On the other hand, the cases treated with a physiologically tested powder yielded after the first or second dose.

CASE REPORTS

CASE 1.—*Patient.*—J. S., male, aged 64, janitor, ten years ago suffered from a liver abscess attributed to a wagon running over his abdomen. He recovered from the operation, but never enjoyed good health. Before the accident he suffered from mild attacks of dysentery and a few years after had an acute attack with bloody mucus in the stools and much tenesmus lasting several months. No history could be obtained of the discovery of amebas in the stools or liver abscess.

Examination.—The patient showed marked pallor and emaciation and suffered from a moderately advanced pulmonary tuberculosis. The abdomen was somewhat distended and coursed with large superficial veins. There was an area of considerable resistance over the upper right rectus and tenderness along the border of the eighth and ninth ribs on the right side. Owing to this tenderness, the liver could not be palpated. He had a leukocytosis of 21,000. For several months he had a number of dysenteric stools each day which contained pus, blood and mucus. A large number of active *Amœbæ coli* and yeast-cells were found on examination of the stools.

Treatment and Course.—Patient was admitted to the Mercy Hospital, Dec. 12, 1910, was ordered a semisolid diet and salines followed by the administration of ipecac. After the introduction of the tube the first dose (1½ drams) suspended in mucilage of acacia was administered. No other discomfort than slight nausea ensued. Examination the next day showed amebas in the stool, but these disappeared after an ipecac enema (3iv—Oi). Several days later the ipecac enema was repeated with the results negative for amebas. Two weeks later ½ dram of ipecac was administered duodenally followed by vomiting without expelling ipecac. The following day a dram was administered, the results remaining negative for amebas. The stools were examined at intervals of one or two weeks after the patient left the hospital and no amebas were found for six months, when a few, slightly motile, appeared in the stools which averaged from two or three semisolid ones a day. A month later, when amebas were again found, 1½ drams of ipecac was administered duodenally in my office. No vomiting occurred. The next day the patient had six or eight diarrheic stools; since then the stools have been better formed; there has been less abdominal tenderness and no amebas. The patient was readmitted into the hospital in December, 1911, with alcoholic pneumonia, from which he died. Previous to this illness, the stools were formed and free from amebas. The pneumonia was associated with severe diarrhea, but careful examination of the stools failed to find amebas.

CASE 2.—*Patient.*—G. S. F., male, aged 32, soldier (referred by Dr. F. J. Snyder, York, Pa.), was admitted to Mercy Hospital, March 28, 1911. He contracted amebic dysentery while serving as a soldier in the Philippine Islands. The disease began as a simple diarrhea, the number of stools varying from six to twelve daily. After three months, the stools were mixed with blood and pus and associated with great tenesmus. At this time he was treated with ipecac and quinin according to the method of Major Rhoades. In spite of the ice-bag applied to the back of the head and the spine, the mustard plaster to the epigastrium, the opiate internally and enforced quietude for hours before and after the administration of ipecac, the patient vomited after each dose. Some improvement was noted after the treatment, but the symptoms soon returned. From this time until 1907 he had been able to do light work, but since then became totally incapacitated.

Examination.—On admission to the hospital he presented an emaciated and anemic appearance with dull expression and sunken eyes. The cervical and inguinal glands were slightly enlarged. The abdomen was somewhat flattened and retracted, the recti muscles were tense and rigid and there was a marked tenderness over the whole abdomen. There was no apparent enlargement of the liver or spleen. The patient had a leukocytosis of 12,500. The stools averaged eight to ten daily, watery or semisolid in character, and contained mucus, pus and blood. Active amebas were found in large numbers, as many as ten and twelve to the field.

Treatment and Course.—Patient was put to bed and on liquid diet. Several high saline enemas were given. Stomach contents showed free hydrochloric acid. March 31, the duodenal tube was introduced at noon; a glass of milk and slice of bread were given at the same time.

At 4:30 p. m. aspirated fluid was alkaline and bile-tinged; then 1½ drams of ipecac in water were administered. Slight nausea followed but no vomiting. At 6:30 p. m. a second dose of 1½ drams was given which caused some nausea and vomiting of mucus but no ipecac.

Two days later the stools were well formed, passed without tenesmus and were free from blood and amebas. A high enema consisting of ½ ounce of powdered ipecac with 10 minims of laudanum in a pint of water was given and retained for fifteen minutes. This was repeated the next day. On April 4, the fifth day of treatment, 1½ drams of ipecac were administered duodenally and retained. This was followed next day by another ipecac enema, which completed the treatment.

The amebas disappeared from the stools after the first duodenal medication and colonic irrigation with ipecac. The patient was in the hospital ten days. A period of fourteen months has elapsed without treatment during which he has averaged one well-formed stool each day, has gained in weight and strength and worked steadily. Repeated examinations of stools have been negative for amebas.

CASE 3.—*Patient.*—W. K., male, aged 35, soldier (treated through courtesy of Dr. Craighill), was admitted to the University Hospital April 25, 1911. Patient had contracted amebic dysentery in 1907, while serving in the Philippines. Symptoms were very acute from the beginning, averaging from thirty to forty stools a day, each containing blood and mucus. He lost about 50 pounds during the first month of illness. For the first two years following the attack he averaged from fifteen to twenty stools a day and more recently from seven to eight. Early in the attack, yellowish-brown pigmentation of the skin developed. There was no nausea or vomiting but much pain and soreness in the abdomen. Shortly before admission to the hospital he developed a cough and night-sweats.

Examination.—The patient was extremely septic. He was emaciated, cachectic and slightly jaundiced, with puffiness under the eyes. The liver was enlarged and painful on pressure but there was no fluctuation. The stools were thin, watery, yellow in color and contained mucus, blood and *Amœbæ coli*. Numerous leukocyte-counts showed a fluctuating leukocytosis from 8,000 to 11,200. The hemoglobin was 40 per cent. Gastric analysis revealed the presence of hydrochloric acid with a total acidity of 26.

Treatment and Course.—April 30, 1911, at 8:30 a. m., the patient swallowed the duodenal tube without difficulty. At 11:30 a. m. a dram of ipecac was administered. The tube was left *in situ*, but the patient vomited some mucus containing a little ipecac about half an hour later, which caused the tube to be partly expelled. One-fourth grain of morphin was given hypodermically and at 4:30 p. m. a second dram of ipecac was given. This was also followed by vomiting of mucus and a little ipecac. A slight depression followed as an effect of the drug. The following day an enema contain-

ing 2 drams of ipecac with 20 minims of laudanum in a pint of water was given. This was repeated the next day, and the following day at 3:30 p. m. a dram of ipecac was administered duodenally followed in a few hours by another dram, which caused nausea and vomiting. Another ipecac enema was given the next day when, owing to the condition of the patient, it was considered inadvisable to continue treatment.

CASE 4.—*Patient.*—G. L., male, aged 62, soldier, contracted dysentery while serving in the army at Fortress Monroe, in 1888. The disease persisted with great severity until 1893, after which the symptoms abated and the disease ran a milder course until 1901. During this year two liver abscesses developed, both of which were relieved by operation. The following year an acute exacerbation occurred which was temporarily relieved by quinin irrigation. Since then he had suffered more or less continuously until his admission to the hospital Sept. 6, 1911.

Examination.—The patient was sallow, cachectic and much emaciated. He had marked abdominal tenderness but no enlargement of the liver. He averaged twelve loose movements a day. The stools were either liquid or semisolid, composed largely of pus, blood and mucus with numerous motile *Amœbæ coli.*

Treatment and Course.—Two days after his admission, 2 drams of ipecac were administered through the duodenal tube in doses of 1 dram each, one hour apart. No noticeable effects resulted from the first dose but after the second the patient complained of nausea which was followed in an hour by a chill and vomiting of mucus. Two days later and after the third dose of ipecac the stools were examined, but no amebas were found. The third and fourth doses were followed by some discomfort and, in one instance, a small quantity of clear fluid was vomited but no ipecac. After the fourth administration a saline and an ipecac enema was given. The stools remained watery but free from amebas and gradually decreased in number. After the sixth administration of ipecac the treatment was discontinued. The dysenteric symptoms persisted for several weeks without the appearance of amebas in the stools. The stools then became well formed and have averaged one per day up to the time of his last report, eight months after treatment. During this time no amebas have appeared in the stools and his health, twenty-four years after contracting the disease, has been restored.

CASE 5.—*Patient.*—F. C. H., female, aged 34, (referred by Dr. Buxton) had good health until 1906, when dysentery set in, which persisted for five years. During this time she averaged from ten to twelve dysenteric stools daily, usually accompanied with tenesmus. Then followed a period of eight months during which she enjoyed fairly good health and averaged one well-formed stool per day. Four months before admission to Mercy Hospital the dysentery returned, averaging four to five stools daily, each containing blood and mucus and associated with abdominal pain and tenesmus.

Examination.—With the onset of this attack an abscess of the liver developed which ruptured into the lungs. Since then the patient had had profuse "anchovy sauce" expectoration, averaging from half to one pint a day. Repeated examinations failed to show the presence of amebas. Tenderness was quite marked over the sigmoid. On admission the temperature was 101. Blood showed an absolute leukocyte-count of 17,900. Stools were thin and watery containing blood-streaked mucus, many actively motile amebas and large numbers of *Cercomonas intestinalis.*

Treatment and Course.—On December 4, 1 dram of ipecac was administered without causing nausea, vomiting or other discomfort. Three stools were voided the following day unattended by pain. Amebas were found which were sluggishly motile. No stool for the next forty hours. The second dose of 1½ drams of ipecac, given December 7, caused slight nausea. The following day the stool was fairly well formed and one motile ameba and numerous cercomonads were found. The general condition of the patient showed improvement, increased appetite, lowered pulse and temperature almost normal. Stool examined December 10 was free from amebas and cercomonads.

December 12, 2 drams of ipecac were administered. This gave rise to considerable nausea and general abdominal pains which lasted about three hours. Repeated examinations of stools for three weeks following showed an absence of amebas and cercomonads. At the end of this time both amebas and cercomonads appeared in large numbers, but disappeared promptly after several ipecac enemas, 2 drams to the pint.

Patient was discharged with normal temperature and almost complete cessation of expectoration. Stools were normal averaging one in twenty-four hours. The accompanying table shows the effect of treatment on the blood with special reference to leukocytes and differential counts.

EFFECT OF IPECAC TREATMENT ON THE BLOOD, WITH SPECIAL REFERENCE TO LEUKOCYTES AND DIFFERENTIAL COUNT IN A CASE OF AMEBIC DYSENTERY (CASE 5)

Date.	Red Count.	Hemoglobin, Per Cent.	White Count.	Polynuc.	Large Monos.	Small Monos.	Eosin.	Remarks.
11/27	.....	..	.....	84	6	10	0	
11/28	.....	..	.....	84	10	6	0	
12/1	3,024,000	43	17,900	78	9	13	0	
12/4	.....	..	.....	..	..	..	.	Ipecac, 1 dr.
12/7	.....	..	.....	..	..	..	.	
12/5	.....	..	.....	84	4	12	0	
12/6	.....	..	12,500	85	5	10	0	
12/8	.....	..	25,000	81	4	15	0	Ipecac, 1½ drs.
12/9	.....	..	17,500	75	5	20	0	
12/11	.....	..	16,030	76	3	21	0	
12/12	3,516,000	..	.....	75	4	20	0	Ipecac, 2 drs.
12/20	.....	..	11,500	79	7	13	1	

CASE 6.—*Patient.*—J. P. L., male, aged 30, traveling salesman (referred by Dr. Bunting), contracted dysentery in 1906, while in New Orleans. The symptoms came on abruptly as an acute attack with profuse dark watery stools. The patient was treated in the hospital for seventeen days when the symptoms abated. Since then he has suffered with frequent exacerbations increasing in severity until his admission to Mercy Hospital, Dec. 27, 1911. For a year he had averaged daily from three to eight watery or semisolid stools, containing blood and mucus associated with marked tenesmus. He had been treated with salol-coated pills of ipecac in 1910, beginning with 50 grains a day the dose being reduced 5 grains daily for two weeks. It was impossible to retain all of the ipecac as it caused vomiting and some of the pills were found in the stools undissolved. Notwithstanding this fact the symptoms were temporarily relieved. In June, 1911, he was again treated with ipecac in keratin-coated pills, 30 grains a day, in addition to opium, bismuth and tannic acid irrigation. The ipecac was vomited either in the form of pills, with the coating dissolved, or disintegrated into a powder. The symptoms were relieved for three or four weeks.

Examination.—Patient appeared slightly anemic, the lymph-nodes of the neck and groin were enlarged and the abdominal wall was soft and relaxed with no rigidity or tenderness on pressure. The liver and spleen were normal. On admission the stools were soft semisolid and revealed microscopically pus cells, active amebas and *Trichomonas intestinalis.*

Treatment and Course.—After nine doses of ipecac the stools gradually became thicker and fewer in number. Administra-

tion of the ipecac was followed by little or no discomfort and a gradual diminution of amebas and trichomonads. Proctoscopic examination showed several healing ulcers in the rectum. In this case treatment was discontinued for a while after three administrations of ipecac, but was resumed on return of symptoms, the results proving more successful. The patient left the hospital two weeks after his readmission in fairly good health. At his last report, he had continued to improve in general health, gaining strength and weight with no return of dysenteric symptoms, averaging one normal stool a day with no amebas.

CASE 7.—*Patient.*—F. E. H., male, aged 39, soldier, barber, (referred by Dr. Rosenthal) had unimportant family and previous history. Present condition began in 1900 while in the Philippines. The first attack lasted eighteen days; stools averaged about six per day and contained blood and mucus. The second attack occurred four months later. Since then the patient has suffered with periodical exacerbations and had never enjoyed good health. For the past two years his health was very much impaired. He suffered with abdominal pains, two to six stools a day, frequent chills, fevers and sweats.

Examination.—Patient entered Mercy Hospital Jan. 29, 1912. He was undernourished and anemic. He had marked flattening and relative immobility of lower part of right chest, probably due to an old pleurisy. No râles were heard. There was tenderness over the sigmoid, the liver was slightly enlarged and painful on deep pressure. The lymph-nodes were enlarged. Leukocyte count was 13,150. Stools were watery, semisolid and contained blood and mucus with numerous amebas.

Treatment and Course.—He was given six doses of ipecac, 1 dram each, through the tube at intervals of three or four days, which caused some nausea and several attacks of reflex vomiting, but no ipecac was expelled. The stools which after the first examination were loose and watery gradually became well formed. No amebas were found after the first administration. For ten days prior to his discharge from the hospital, February 24, he averaged one normal movement daily. Proctoscopic examination made during the course of treatment showed rapid healing of several ulcers located in the rectum. Since leaving the hospital he has averaged one well-formed stool a day with no further dysenteric symptoms. Examination May 8, 1912, showed stools free from amebas.

It appears from a study of these few cases that the ipecac treatment by duodenal administration is distinctly more efficacious than by other methods. Many other forms of treatment had been employed without avail. The fact that this series of most intractable cases were either permanently cured or relieved for a considerable period of time bespeaks efficiency of the method.

Large duodenal doses of ipecac seem to have no injurious effects. There are occasionally gastro-intestinal symptoms such as nausea, less frequently, vomiting and, rarely, diarrhea lasting from twenty to forty-eight hours. Slight general depression may appear with a tendency to lowering of blood-pressure which rarely amounts to more than 10 mm. even with doses as large as 2 drams. The effect on the leukocyte count, as shown by the accompanying table, is a fair illustration of what occurred in most all of the cases.

In conclusion I desire to acknowledge the valuable services rendered by Drs. Charles E. Simon and A. W. Skilton who examined the stools of my patients and Drs. S. H. Hutchinson and J. V. O'Connor for their clinical assistance in the study of the cases.

20 East Preston Street.

Harmful Dusts.—Another curious effect of dust has been observed in a form of temporary deafness among the workers in jute, from which twine and bags are made. The fine dust of the jute fiber, mingled with the natural "wax" of the ears, packs into hard cakes against the tympanum.—W. G. Thompson in *Jour. Maine Med. Assn*

RECENT HYGIENIC IMPROVEMENTS IN DAIRYING*

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MONTCLAIR, N. J.

The production of clean milk has engaged the attention of business men for only about a score of years, and while all recognize the necessity of great reforms in the production and handling of this substance, the means of accomplishing this desideratum on a large scale have hitherto seemed practically impossible, except at a cost to the consumer which has proved excessive to all but the well-to-do. So many factors have had to be taken into account in the solution of this problem, that some of them up to this time either have been overlooked or have proved insurmountable. The main factor has only recently begun to receive its due weight in sizing up the situation, and this factor is, as will be shown later on, the dairyman himself—not the man who sells the milk, but the man who produces it and packs it off to market.

High-grade milk has for some years been brought to market from a relatively few high-grade and expensive dairies. Some of this is called "certified" milk, and is produced under the most favorable possible conditions, and is sold for from 15 to 22 cents a quart; which, of course, is a high price for a poor man to pay. So steps must be taken to produce a clean, safe milk which a poor man can afford to buy. Of all the milk brought to market, not over 5 per cent. can be "certified" while something must be done to make the remaining 95 per cent. at least safe for the millions of poor babies whose main, or sole, food-supply is cow's milk.

Years ago a friend of mine started a dairy farm in which he employed many new and expensive devices to render the milk as nearly perfect as milk can be made. He employed maids, dressed like trained nurses, in clean starched caps and immaculate wash dresses, to do the milking, because he rightly maintained that women are gentler, neater and more dexterous at such work as milking than men, and that inasmuch as the moral treatment of the cow has an enormously important effect on the quality and wholesomeness of her milk, women, with their gentler and neater ways and more correct personal habits, are much better fitted than men of the same walk in life to milk cows and take care of the milk.

He also invented a covered pail with a small opening in the cover and a diaphragm consisting of a cloth stretched over the opening, to be milked through. Everybody was astonished at the great amount of dirt which collected on this sterilized cloth with each milking, no matter how many precautions had been taken in washing the milker's hands and the cow's flanks and teats. Great progress was made in producing clean milk and the new barns, with their fancy fittings and concrete floors and bright airy stalls, were so crowded that some of the cows had to be kept and milked in one or two old dusty, ramshackle barns. To the surprise of everybody concerned, the milk drawn in the old dusty barns was found to be nearly as clean and free from bacteria as that milked in the new up-to-date barns.

You may ask how it was known so promptly that the milk from the old barns was so nearly equal to that produced in the new barns. It was simply because the milk from every barn on the farm was carefully examined every day under the microscope and the bac-

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

teria counted. This similarity in the milks produced under such diverse conditions was evidently due to the covered pail.[1]

The fact that clean milk could by any means be produced in a dirty barn was a great discovery and bound to bring about radical changes in the entire dairy business. Like many of the most important discoveries and inventions in the world, it came about largely through an accident. Yet it is none the less valuable for all that, inasmuch as it bids fair to prove an inestimable boon to suffering humanity.

The dairy farm of which I have just spoken failed financially, partly because it was started some years ago, before the public was so wide awake as it is now to the question of clean milk, and partly because the whole process of producing clean milk was then much more of an experiment than it is now.

The man who started the dairy sold his interest in it after some years of struggle to make the public appreciate what he was offering them. He made no money by his venture, but he came out of it with the idea firmly impressed on his mind that clean milk for the multitude can be produced and sold at a price within the reach of any man of moderate means, always provided that the farmer can be induced to cooperate with the milk company or the wholesaler who puts the milk on the market.

I went with my scientific friend a number of times to a filthy and badly kept dairy and spent some hours of valuable time trying to impress on the dairyman how easy it would be to produce clean milk by a few simple precautions. Patiently and carefully the doctor (for the scientific dairyman was primarily a doctor and a hygienist) would state and restate the steps to be taken and his listener would promise in a half-hearted way to carry out the directions, but would invariably wind up the discussion by asserting that he ought to get at least a half cent more a quart for his milk. And so far as the farmer is concerned, this is the crux of the whole matter. If he is to produce cleaner and better milk, he must have some reward for his extra pains and trouble and the higher degree of intelligence which he puts into his business. The philanthropic attitude of those great milk companies which undertake to produce better and safer milk for the suffering and helpless babies of the tenements, and to pocket all of the advanced price themselves, has not seemed to appeal to the farmer. The farmer has had a hard enough time to make both ends meet without spending more money in producing wholesome milk than he can get for it. As one of them has expressed himself, he feels sorry for the poor sick babies in New York City, but the babies he is most interested in and is bound to take care of are his own babies. Consequently, if he should send better milk to market, he should demand a better price for it.

One of the great milk companies has had a long and expensive litigation because the farmers from whom they purchased the milk which the company sold, would not consent to have their herds tuberculin-tested. The idea of offering any more money to the farmers for their extra expense and trouble in getting their herds tuberculin-tested never seems to have occurred to this company. Now that the suit has gone against it, however, the company seems to have been able to make some arrangement with the farmers, inasmuch as it announces that it is prepared to furnish tuberculin-tested milk at 10 cents a quart to anyone who wants it.

Now, in spite of every precaution that may be observed in drawing, handling and transporting milk, there is no absolute guarantee that it may not become contaminated with germs pathogenic to man.

The epidemic of tonsillitis and influenza which prevailed in and about Boston last spring and summer, and claimed many victims, of whom a considerable proportion died, was, after a careful and impartial investigation, traced to the milk from one of the best and most scientifically conducted dairies in the world. It was also found that the contamination of the milk was not due to any fault or carelessness on the part of any employee or agent of that dairy. So far as one can judge from a review of the testimony of the impartial and painstaking scientists who conducted the investigation, such a contamination of the milk of any dairy cannot be prevented by any means known to science, unless the milk shall be properly pasteurized or sterilized. This episode in the history of scientific dairying has been dwelt on in this paper because it occurred so recently and was so thoroughly investigated. Other similar occurrences have been reported from time to time in this country and abroad. Some years ago I was interested in a study of the spread of a mild form of diphtheria by the milk of one of the best dairies anywhere, which is the pioneer "certified milk" dairy in America. The investigation seemed to prove without question that the diphtheria was spread by the milk of this dairy, although every known precaution (except pasteurization) had been observed in preparing the milk for market.

Mr. Nathan Straus and many others, including the scientific man of whom I have been writing, agree with Professor Sedgwick and the other investigators of the Boston epidemic in asserting that milk cannot be guaranteed to be free from pathogenic germs (including those of tuberculosis) unless it has been pasteurized.

Some physicians hold that pasteurized milk has lost some of its most valuable nutritive qualities, so that its constant use may produce rickety babies; and furthermore, that pasteurization may be a bad thing because, by covering up nastiness in the milk, it will encourage lax and dirty methods in producing and transporting milk. While it must be admitted that there is a certain amount of truth in these objections to pasteurization, those who favor the universal pasteurization of milk have, so far at least, the better of the argument.

While the matter was being discussed the other day, our dairy doctor pointed to his own child, a ruddy and round little girl of 4, and said, "Do you see anything rickety about that child? She has never had any milk since she was weaned that has not been pasteurized, and she has had very little other food of any kind." And so far as the objection goes that pasteurization may be a cover for careless or dirty dairying, no good dairyman will allow his milk to be dirty and trust to subsequent heating to conceal that dirt. Even if he were disposed to do this, the methods adopted by the milk company of which I am writing, which will be presently described, will effectually prevent such a fraud on the milk consumers. Having made up his mind that milk must be pasteurized before it can be guaranteed, the question how this could be satisfactorily

1. The pail now in use does not have a cloth diaphragm, as it has been found that a hood of metal over the small hole in the cover of the pail so arranged that the milker must direct the streams of milk from the cow's teats horizontally, instead of perpendicularly, answers practically every purpose. In other words, the contamination of the milk is caused by the dust which falls into the pail from the cow's sides, the milker's hands and clothes, and the dust that is always circulating in the air, especially of a stable.

and economically done immediately confronted our dairy expert. He had heard that brewers pasteurize their beer at the breweries, after it has been bottled, and immediately proceeded to investigate the process to find out, if possible, whether it could be used to advantage in pasteurizing milk. As a result of his study, he has installed one or more pasteurizers, similar to those used by the brewers, in which all the milk from his creamery is pasteurized after it has been bottled and a metal cap has been clamped on the bottle, just as the cap is clamped on the bottle of beer. This cap, with the date of the pasteurization plainly stamped on it, is not to be removed until the milk is used for food; so it cannot be contaminated or sophisticated in any way between the creamery and the consumer's table.

Now I have briefly outlined the fundamental principles on which clean and cooperative dairying can be carried on and milk produced and sold at a profit at 9 or 10 cents a quart.

Of these fundamentals, the most important one, however, has only been hinted at. It is necessary therefore, to enlarge on it somewhat more fully.

It was said above that the main factor in the production of safe and wholesome milk at a moderate price is the dairyman. I have spoken of the injustice and futility of expecting the farmer to produce a higher-grade milk at an increased cost and not allowing him to participate in the increased profit accruing from its sale. Yet no one appreciated, until the experiment was actually tried, how potent a factor this same farmer is in the production of milk of a satisfactory quality. When our dairy doctor got his creamery started, he refused to accept milk having a bacterial content of over 10,000 per cubic centimeter, and all his farmers brought him milk just below that count, but never much below it. After thinking this over for a while, the bacteriologist in the company's employ spoke to one of the farmers about it and was surprised at the reply that there was no object in bringing cleaner milk, so long as the milk they were bringing would be accepted. Then the creamery adopted another device. It offered $10 a month in prizes, $25 first prize, $10 second prize and $5 third prize, to the farmers bringing the milk that had the smallest bacterial content during the month. A great rivalry at once arose among the milk-producers, and men whose milk had never shown a bacterial content below eight or nine thousand immediately began bringing milk having only a few hundred bacteria per cubic centimeter. The farmer was not told that he must wash his hands carefully between each milking and carefully wash the cow's flanks and udder and sprinkle the stable floor with water before milking; but under the stimulus of the prize and the chance of surpassing his colleagues, he "got busy" and found out all these things for himself and put them into practice; and again the results have been most expectedly satisfactory to all concerned.

These farmers were not ordered to have their cattle tuberculin-tested; they were paid to do it. They were given one-half a cent a quart more for their milk if it was brought from tuberculin-tested cattle. They were also given one-quarter of a cent a quart if their bacterial content was less than 10,000 per cubic centimeter. They were also given 4 cents a can (1/10 of a cent a quart) for every "point" above 3.5 per cent. of butter fat (a point being 0.1 per cent.) and they agreed to pay a penalty of 1/10 of a cent a quart for every "point" below 3.5 per cent. of butter fat in the milk delivered at the creamery.

Now we have a nearly complete cooperative scheme in which the farmers and the creamery are equally interested. The creamery, of course, belongs to the company and all the pails and cans used in holding and transporting the milk are sterilized at the creamery. The farmers get their sterile utensils at the creamery every day and bring them back the next morning filled with milk, leaving them there and taking others away with them for use that night and the next morning.

The bacteriologist is employed by the company and every day he examines every farmer's milk and posts the results on a bulletin board where everyone can see them, so that the farmers all know exactly where they stand and where their competitors stand every day of the month, and who is likely to get the prizes; and if a man fails to keep up his record, he and his neighbors immediately know it and generally can find the reason. The practical benefits of this daily supervision of the milk were strikingly shown not long ago. A farmer one day brought in some milk that showed a greatly increased number of bacteria above his average count. When this was pointed out to him he had no idea of the cause. The bacteriologist, according to his custom, hastened to the farm and inspected the herd. He found three cases of garget, an infectious disease of the cow's udder, which is supposed to convey scarlet fever to human beings who may drink the milk of the affected animal. These three sick cows were immediately isolated and a possible infection of the whole herd was prevented, as well as a possible epidemic of sickness among the consumers of the milk. It is easy to imagine that many human lives might have been saved had this custom of daily bacteriologic examinations of all the milk from every dairy been carried out in the past. It is so useful, so simple, and so practicable, that it does not seem unfair to predict that the dairy laws will eventually enforce this precaution in all creameries and public milk stations.

On another occasion a farmer brought to the dairy some milk showing an extraordinarily large bacterial content. At first he stoutly denied any known cause for this, but, on being cross-questioned, acknowledged that he had bought some milk from a neighbor and turned it in as his own. So an attempted fraud was discovered and frustrated.

Now we see some of the benefits to which cooperation in the dairy business and milk business leads.

1. A comparatively high and safe grade of milk produced at a price within the reach of practically all users of milk.

2. A contented and intelligent body of farmers producing this milk and getting a tangible reward for their improved methods. As they are now beginning to see the advantages of cleanliness they are beginning to practice it assiduously and to believe in it. Instead of looking on health and sanitary regulations as an imposition and a hardship, they are cheerfully carrying them out and are taking pride in their work, and they are also reaping a pecuniary reward, as it is just and proper that they should. This cooperative dairying has opened a new vista before the farmer and has instituted in his business methods and ways of thought an improvement that promises great things for the future. The dairyman has had a hard time for many years, and the result has been the poorest milk that he could get the milk companies to accept, with the consequent large infantile sickness and mortality in all our cities.

The attempt to make him produce high-grade milk by passing ordinances has proved as futile as the long

continued attempt, so popular in this country, to make people moral and abstemious by law. Education, an appeal to the farmer's self-respect and an assurance that he will be a participant in the increased remuneration for furnishing milk that is safe for a baby to drink, will inevitably work out a revolution in the milk industry.

Our dairy doctor is an unquestioned philanthropist and his efforts will tend to raise the whole milk-producing business from its present low and unsatisfactory state into a profitable and respectable — I might almost say, a scientific — calling that may well engage the entire time and thought of any well educated and refined young man or woman.

42 Church Street.

ABSTRACT OF DISCUSSION

DR. ARTHUR R. REYNOLDS, Chicago: It has been pretty well demonstrated that farms can produce any kind of milk that is wanted, if they are paid for it as they should be.

With all the papers, ordinances and things that are read and passed, very little has ever been said about the age of milk. It is well known that milk has germicidal properties up to the time that it is about 6 hours old, and also that cows are milked every twelve hours. A great many people in the country and smaller places can get their milk every twelve hours; every city should get some of their milk every twelve hours.

DR. MALCOLM C. ROSE, New York: It was not quite clear what kind of cover or fastener Dr. Newton suggested to hold the cheesecloth in place. Many farmers would like to know of such a simple device to produce clean milk, rather than go into all the detail required for qualification for the certified class.

DR. J. JOSEPH KINDRED, Astoria, N. Y.: There is an important relationship between what Dr. Newton has said as to the price of milk which the farmer gets and the price which the consumer has to pay. And this brings out the point that there is no economic, basic foundation for the fact that the poor consumer and the starving parents of sick babies have to pay the price that they are now compelled to pay. In other words, there is no relationship between the law of supply and demand; and even if the farmer is able to sell his milk at a fair profit, the consumer ultimately has to pay an outrageous profit; and we understand, of course, the reason for it; it brings up the very broad proposition of the regulation of the trusts.

DR. JOSEPH GOLDBERGER, Washington, D. C.: I think we all agree that we want primarily a pure milk; and we all will agree that there is a possibility of obtaining it; but the difficulty in practical life is to keep it pure during its transit from the cow's udder to the mouth of the consumer. Now, while this may theoretically also be possible, as a matter of practical fact it is only too frequently not attainable, and therefore we must try to take such measure or measures as will insure a supply of milk, safe in the sense of being free from disease-producing organisms.

There can be no question but that pasteurization does make milk safe. Some of the objections to pasteurization to which Dr. Newton referred undoubtedly are valid; but as he also well pointed out, when weighed against the points in favor of making the milk safe to the consumer, they must fall out of practical consideration. To emphasize, therefore, I simply want to say that we must pasteurize our milk, at least in large cities, to increase the chances of the consumer getting a safe, disease-free milk. Speaking for myself, I have not, in my own family, altogether confided in that; I am speaking now of commercial pasteurization. I do not entirely trust milk even after it has been commercially pasteurized. In my own family I invariably use boiled milk; and I am bringing up two vigorous youngsters in that way. They have never had any milk (except their mother's for a short period in infancy) that was not boiled, and I do not believe that boiled milk has hurt them in the least.

DR. J. J. KINDRED, Astoria, N. Y.: May I ask Dr. Goldberger if it is possible to sterilize the whole quantity of milk consumed in the city?

DR. M. P. RAVENEL, Madison, Wis.: I would like to combat the wide-spread idea that pasteurization destroys the nutritive value of the milk and produces scurvy and malnutrition in children. Pasteurization must always be a temporary measure and should not be advocated to take the place of clean milk from healthy cows. It seems to me that one can liken the case to the choice between a pure mountain spring and filtered water from a cesspool; theoretically, the filtered cesspool makes a safe drinking-water, but people do not want it, and it is better to take a water which is pure at its source. In the same way it is better to have pure certified milk than pasteurized. Nevertheless, pasteurization is a great safeguard and should be adopted where an absolutely clean supply cannot be obtained. The charge that pasteurized milk produces scurvy has been answered repeatedly. I once heard Dr. Isaac A. Abt, in reply to such an accusation, say that he had seen children with scurvy who fed at the mother's breast, which is unquestionably true. I wish to emphasize the value of pasteurization as a measure for the protection of children against diarrheal diseases and tuberculosis and to say further that it does not interfere with the nutritive value of the milk.

DR. RICHARD COLE NEWTON, Montclair, N. J.: I have always had a prejudice against pasteurization of milk. I was brought up in a community where it is the custom to cry down this process, saying that it may produce scurvy in children. In these days, babies are getting a more liberal diet than formerly. We tell mothers to give them apple sauce and so on, earlier than we used to do. Like Dr. Ravenel, I have seen very little scurvy or rickets of late, and it is almost criminal for a man to have much of them in his practice, because they are so easy to avoid.

One or two of the discussers have asked how the cloth diaphragm is used. One farmer, who had a dirty old barn and was very poor, just took a clean rag and tied it with a string over the top of an ordinary open pail. He took his milk to a hotel which used a lot of milk, and his milk was found to be the cleanest of any that was brought there. The milk-pail that was originally used had a cover that fitted on the top like the cover on any kind of a pail. There was a circular opening in the cover 3 or 4 inches in diameter, across which the cloth was stretched. There was a rim around this opening about 2 inches high and a cap or ring, pushed down over this rim, held the cloth fast. The cloth was renewed for every one or two cows. It has been found as good or nearly as good to use a metallic hood over this opening, and when the men milk, the stream of milk is directed horizontally into the pail. Cloth diaphragms are not used in some of the large dairies nowadays. Nearly all the dirt in the milk comes down out of the air as dust and may be arrested on the top of the hood.

Dr. Reynolds spoke about the length of time between the milking and the delivery of the milk to the consumer. Unfortunately, in New York City it does not seem possible to get the cows and the children very near together. It was said that years ago an experiment was tried in Paris on foundlings, nearly all of whom were syphilitic and practically all of whom died very young: female asses were driven up to the foundlings so that the children could suckle them, with the result that many of them lived—a striking illustration of the advantage of feeding babies warm milk. There is no question about the enormous advantage of this procedure, but in New York and Brooklyn it seems impossible; so we have to rely on pasteurization. Milk can be sold at a profit when sold in the manner described in my paper—at 10 cents a quart; that is about as cheap as clean milk can be produced.

Fresh Air and Tuberculosis.—No one should sleep in a closed room, whether sick or well. Bad air is one of the main causes of tuberculosis. Fresh air is one of the cardinal means of cure.—E. Cummings in *Jour. Outdoor Life.*

A STUDY OF SALIVA AND ITS ACTION ON TOOTH ENAMEL IN REFERENCE TO ITS HARDENING AND SOFTENING *

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PHILADELPHIA

Enamel softening has been considered to be necessarily associated with roughening of the surface, loss of luster and dissolution of the cemental substance that binds the enamel rods together; and whenever enamel decalcification is associated with decay of dentin this conception of enamel softening is only too accurate. But this conception seems to be only a part of the story, so to speak — the final part rather than the complete process of enamel degeneration.

For instance, 1 to 1,000 lactic acid and water at mouth temperature will cut tooth enamel in thirty minutes with a rough, white surface. A tooth placed in 1 to 500 lactic acid and some salivas will be unharmed. A tooth placed in this solution made with other salivas, after three or four days, may show the enamel perfectly smooth and to all appearances normal, and yet it can readily be pared to a slight distance with a lancet. A 1 to 500 saliva and lactic acid solution has an extremely acid taste and instantly turns litmus brilliantly red. A 1 to 20,000 lactic acid and water solution will, at the end of three or four days, leave the tooth enamel unharmed to all appearances, and yet the outer surface of the enamel will, with the edge of the lancet, be found to have distinctly softened. A 1 to 500 lactic acid solution with my saliva, although the solution has a decidedly acid taste, will produce this identical effect. The appearance of the enamel is unchanged but distinctly softened to the cut of a lancet, although before the tooth has been immersed the lancet is unable to make any impression on it.

The action of water solutions of acid calcium phosphate and acid sodium phosphate on the teeth has been mentioned by Kirk, stress being laid on the fact that these salts cause smooth white decalcification. As a matter of fact, many acids in water solutions cause smooth primary softening, if the solution is sufficiently weak. Saliva ordinarily restrains the action of most acids up to a certain point, and then begins with the smooth decalcification and ends with the same rough white decalcification that we find in a water solution. The saliva solution is ordinarily from ten to twenty times weaker in its action on enamel than is a water solution of the same acid strength. The acid sodium phosphate and acid calcium phosphate are, however, intensely interesting in their action, not only in water solutions but in saliva solutions. Acid calcium phosphate 1 to 5,000 water solution, and acid sodium phosphate 1 to 20,000 water solution at the end of two days, will turn tooth enamel into a cloudy, pearly white, with a clear smooth surface. This surface is distinctly softened to the cut of a lancet. If, however, these teeth are removed from the solutions before the process advances too far, the cloudy appearance will in time disappear, and the tooth enamel will resume its normal appearance. This phenomenon occurred many times, but once when I retested the hardness of these teeth with a lancet I found that not only had the white color disappeared but the superficial softening of the enamel had disappeared also. At first I attributed this disappearance of the softening of the enamel to previous faulty observations, but the same phenomenon occurred in my lactic acid test. A tooth that had been placed in a 1 to 20,000 lactic acid watery solution, at the end of a few days was slightly softened to the cut of the lancet, but a month or so later the lancet would not cut it. It was then that the possibility was made apparent that partially softened smooth enamel could reharden itself if the decalcification had not progressed too far.

I then made the following test: Two sound teeth with enamel impervious to the lancet were each placed in a lobe of a navel orange. These lobes were each placed in a bottle with a few drops of ether to prevent fermentation, and kept at body temperature for two days. At the end of that time the teeth were removed and examined. The lobe around one of the teeth had fermented, the lobe around the other had not. The tooth in the fermented lobe showed a smooth, white, translucent area of decalcification, running from the cutting edge to about one-third of the distance to the neck. The rest of the enamel was normal to all appearances, and yet the surface, both of the white and the apparently normal enamel, was readily pared with a lancet. The lobe in which the other tooth was embedded had not fermented, and the enamel also seemed normal, but here again the outer surface of the tooth enamel was distinctly softened. These teeth were then washed in water and kept in some of my saliva at body temperature for two weeks. At the end of five days there was a decided rehardening of the enamel surface, and the white area of decalcification on the tooth mentioned had half disappeared. At the end of ten days the enamel could no longer be scratched with a lancet; at the end of two weeks the white spot of decalcification had almost if not entirely disappeared, and both teeth appeared perfectly normal.

That saliva does possess the power of restraining enamel from carbon dioxid decalcification was proved as follows: A sound extracted tooth was placed in a sparklet or automatic soda water former, where the liquid within could be charged from a carbon dioxid cartridge. Thirty cubic centimeters of saliva were added which had been obtained by chewing rubber. The saliva was then charged with carbon dioxid and the sparklet placed in a culture oven at a temperature of 98 F. for thirty days. At the end of that time it was taken out and appeared unharmed. The tooth was then washed with a little ether and replaced in the syphon with distilled water. This water was then charged with carbon dioxid and the flask replaced in the culture oven for twenty-four hours. At the end of that time the enamel showed a chalky decalcification that could be scaled off with the finger nail.

This protective power of saliva is also exerted against lemon, orange, grape, grape fruit, strawberry, rhubarb and cherry, the special action of which was the subject of a paper[1] I wrote in 1908.

These experiments with extracted teeth, weak acid solutions and tests with a sharp lancet in the hand, while suggestive, seemed to me not sufficient to establish so reactionary a doctrine; so while morally convinced of the truth of my assertion that softened enamel could reharden, I immediately started to perfect a machine that would show in the minutest degree just how far a given force would drive a standard punch into sound enamel, partly decalcified enamel and rehardened enamel, if it did reharden, from the effects of slight decalcification. I will not dwell on the discouraging task of making good mechanics work with a scientific

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Read before the Harvard Odontological Society, March 7, 1908.

conscience. They would not do as they were told, and much of the adjustment had to be done by the deviser of the instrument, which from at first having an error of 1/500 of an inch, finally developed into a micro-dynamometer that could deliver 475 pounds pressure on a punch, the penetration of which could be measured up to 1/600,000 of an inch. Something approaching this accuracy was necessary as it was found experimentally that the scope of the average test lay usually within 1/10,000 of an inch. It was, however, decided to set the register so that it would measure in units of 1/300,000 of an inch, which as can readily be seen could be reduced by a table to microns or tenths of microns, one micron being equal to 1/25,000 of an inch, twelve of the machine units, therefore, being equal to one micron. The pressure was given by a mercury gauge to which the punch was attached. A micrometer screw supporting the anvil on which the specimen for testing was to be placed was strongly connected by castings and heavy drawn steel rods beneath the mercury gauge and punch. The pressure was applied to the specimen by placing it on the anvil and raising the anvil by the screw up against the punch until the mercury marked the pressure desired. The penetration of the punch into the specimen was made known by a microscope equipped with a specially constructed filar micrometer, which microscope was solidly screwed to the anvil. This microscope was then adjusted and set so that it could accurately divide into the desired number of parts a glass scale attached to the punch. By this device, all error in the use of the machine was largely thrown out, since only the relation between the punch and the anvil was within the scope of measurement.

In making the various tests three punches are used: a heavy steel punch with a flat hardened circular point 1/50 of an inch in diameter; an iridium pointed punch 1/50 of an inch in diameter for testing acid erosion; it will stand up to 25 lbs. without showing compression; a diamond-pointed punch with a circular, flat point 1/50 of an inch in diameter that can be used in acid solutions and will also readily stand 100 lbs. pressure. Twenty-five pounds pressure with the diamond point will give a penetration equal to 75 lbs. with the steel point. This is no doubt due to the greater sharpness of the diamond edge over the steel.

If, therefore, the specimen is so adjusted and set under pressure that there will be no give between it and the anvil, it is possible to determine accurately within, say, one-tenth of a micron, just how far the punch would penetrate under a given pressure. For instance, the specimen is carefully ground with a Reichert section grinder so that there is a flat, large base. A small spot on the top of the enamel is ground parallel to the base. This forms the area to be tested. Any pressure exerted on the enamel spot by the punch is directly expended on the enamel, without any side give between the base of the specimen and the anvil. The specimen with parallel sides is placed on an agate slab and the slab placed on the anvil. The punch is adjusted near the edge of the ground enamel and given a pressure of 5 pounds. A reading by the microscope attached to the anvil is then taken on the scale attached to the punch. The pressure is then raised to the desired amount, say, 75 pounds, for a given time, and then the pressure is reduced again to 5 pounds and another reading taken, the difference on the scale representing the penetration of the punch. To shift the specimen under the point for the different measurements, the agate slab is moved, not the specimen on the slab. This eliminates variations in the spring of the specimen, since the compression of the parallel slab on the anvil under a given pressure, will always be the same.

Five or more measurements are usually made for each reading and the average taken. By this means the density and strength of normal enamel can be shown, as can also the variations from the normal enamel caused by strong acids, water solutions of acids, saliva, fresh and stale acid saliva solutions, and the recovery of enamel from the effects of a slight acid decalcification and the rehardening of its surfaces after it has been ground with a stone.

All analytical analyses of saliva heretofore have been hampered by the fact that the investigator of it first started by chemically breaking it up, thus largely destroying it as saliva. All analytical investigation of saliva from a dental point of view up to the present time, has been of little value owing to the fact that normal saliva may be alkaline to lacmoid or congo red, neutral to litmus, and acid to turmeric paper, all at the same time. How saliva reacts to lacmoid, litmus or turmeric may be purely of academic interest, but how it may react on enamel and dentin is a vital question that interests every man that lives, and this machine has, it is hoped, made it possible for enamel to be its own indicator of how a saliva may affect it. Since the first days of physiologic study, saliva has been a most tempting field for investigation because it is the body secretion most easily obtained in a living state. It ought to be at least of equal value to the diagnostician as urine, but up to the present time it has not been. This may lie in the fact that saliva is a living substance, and urine is an effete product that lends itself to a chemical analysis that would absolutely destroy saliva as saliva. Chemical analysis that breaks up the individuality of living saliva is of little more value in showing the vital action of saliva than fried chicken would be in showing the beauties of a cock fight.

I am far from discouraging saliva analysis of any kind. Epinephrin may illustrate the living secretion of the suprarenal capsule or it may not. Salivary extracts or chemical products are interesting but inconclusively related to the living action of the secretion and, therefore, while enzymes of a curious and even therapeutic nature may be extracted from saliva, no one can prove that they justly represent the action of the living secretion unless some means are devised to make control tests with the living saliva that show the corresponding action. This machine, it is hoped, will make it possible to test on tooth enamel the acid restraining power of various living salivas in relation to a standard water solution of acid. Salivas vary in this power. The same saliva may vary at different times, apparently according to the condition of the patient.

The conditions then are as follows: During sickness the teeth, from clinical experience, are known to decay. This may be due partly to acid medicine or lack of care, but with every allowance for these sources of error, it seems to be well established that severe or chronic illness in some way may render the teeth sensitive to deterioration. Formerly it was supposed that some product was extracted from the enamel through the blood circulation, but this is now fully disproved by the histologic knowledge that human tooth enamel is, to all intents and purposes, absolutely shut off from the blood current. If a relation between approaching sickness and a loss of acid protecting power in the saliva could be established, a beginning in the diagnostic testing of the living saliva would have been fairly inaugurated. Take for

example, the test that was made on a specimen of tooth enamel that I use for an illustration. One side was ground to a flat, broad base, on the other side the enamel was ground in a small corresponding parallel plane. This was placed on the anvil of the machine and raised up against an iridium point 1/50 of an inch in diameter until a pressure of 5 pounds was reached. A reading was then taken on the micrometer scale and noted. The anvil was raised up and down repeatedly until all give between the specimen and anvil disappeared, and the 5 pounds pressure always gave the same reading. Then fresh lemon juice and water 1 to 100 was placed on the specimen around the point and the point relaxed so that the fluid could readily get underneath. At certain intervals of time the pressure of 5 pounds was tried and a reading taken which showed a loss of tooth structure as follows:

2	minutes	0.8	micron
5	"	1.2	"
10	"	1.4	"
35	"	2.3	"
60	"	2.8	"

Thus, in one hour there was a loss of 2.8 microns of tooth enamel. This same test was then made on the same tooth enamel with a fresh saliva solution of lemon juice, 1 to 100. This solution turned litmus red and was distinctly sour, and yet after an hour's application the enamel showed a loss of only 0.3 of a micron. We might, therefore, express the restraining factor of that saliva as 28 : 3 or 9. Numerous other tests have been made of a similar nature and all seem to give consistent figures. They almost invariably seem to prove the power of saliva to restrain the action of lemon juice on enamel. They also show that some enamels are much more resistant to decalcifying action than others.

As an illustration, another test might prove interesting: This specimen was ground longitudinally for a base along its axis and a small parallel plane ground on the enamel of the opposite side. A solution of 1 to 100 lemon juice and water applied for an hour dissolved 1.0 micron. Saliva and lemon juice, 1 to 100, applied for sixteen hours showed no loss of tooth tissue at all. It was then tested with the steel punch 1/50 of an inch for density and was found so softened that from 60 pounds to 70 pounds pressure could not be obtained. The softened enamel simply refused to support the punch under such a pressure. The specimen was then placed in fresh saliva and set in the culture oven at blood heat for seven hours, the saliva being changed every half hour. At the end of that time the tooth was again tested with the steel punch and was found to have so hardened that 75 pounds pressure was readily withstood and a various penetration noted of 3.5, 2.8, 3.2, 4.5 microns. No doubt it would have hardened up more but the various testings had so strained the specimen that it was considered advisable to continue with others. The great softening and hardening apparent in this last test is no doubt due to the enamel being very thin so that the variations were partly due to the dentin underneath. But tests on two bicuspids extracted from the same mouth for the purpose of regulation, with perfect enamel, to all appearances show conclusively that enamel has an extraordinary power of hardening and softening under various conditions, although no acid solvent at all was used.

These specimens were soaked for about ten days in a 1-to-10 dilution of liquor formaldehydi in water. They were then cut flat at the neck and 1/80 of an inch ground off the cusps of Specimen 1, and 1/50 of an inch ground off the cusps of Specimen 2. The diamond point was used at 25 pounds pressure.

Specimen 1 (buccal cusp) when freshly ground gave an average softness of 1.5 microns, the readings being: 1.1, 2.0, 1.2, 1.8, 1.8, 1.2.

Specimen 2 (buccal cusp) gave an average softness of 1.6 microns, the readings being: 1.2, 1.6, 1.6, 1.5, 2.1.

Specimen 1 (lingual cusp) gave an average penetration of 1.2 microns, the readings being: 1.3, 1.2, 1.3, 1.2, 1.0.

Specimen 2 (lingual cusp) gave an average penetration of 1.1, the readings being: 1.3, 0.9, 1.1, 1.3, 0.9.

Here in two specimens, apparently of similar teeth from the same mouth, we find the buccal cusps having the same hardness with 0.1 of a micron, and the same with the lingual cusps; while the lingual and buccal cusps on the same teeth show a variation in penetration of from 0.5 to 0.3 micron respectively.

I speak of this comparison to show the consistency of the machine measurements. I shall now proceed with the tests on Specimen 1:

After being tested the specimen was placed in distilled water for three hours and again tested. The buccal cusp had softened from 0.3 micron to 1.8 microns, the measurements being 1.4, 2.4, 3.9, 1.9. The lingual cusp had not changed, showing a penetration of 1.2 microns, measurements being: 1.5, 1.3, 1.3, 1.3, 0.8.

The tooth was then placed in J. H. saliva over night.

In the morning the buccal cusp showed a slight hardening of one point, to the average hardness of 1.7, the measurements being: 1.8, 1.3, 1.8, 2.2, 1.6.

The lingual cusp had hardened 0.2 to the average of 1.0, measurements being: 1.1, 1.2, 1.0, 0.8, 1.1.

The tooth was allowed to stay in J. H. saliva, at room temperature, all day (nine hours) and tested again, when the buccal cusp had hardened seven points, to the average of 1.0, measurements being: 0.9, 0.8, 1.2, 1.0, 0.9, while the lingual cusp had hardened 0.1 to the average density of 0.9, measurements being: 0.4, 0.7, 1.1, 1.3, 1.1, 0.7. In this instance, the buccal cusp started at 1.5, softened to 1.8, and hardened to 1.0. The lingual cusp started at 1.2 and stayed the same, or consistently hardened to 0.9.

It was decided to try the saliva of my assistant on this specimen.

The specimen was placed in incubator, 98 F., with A. J. F. saliva and a little ether for 36 hours, and buccal cusp showed a softening of 0.5 or an average of 1.5, measurements being: 1.7, 1.4, 1.2, 1.4, 1.5, 1.5. Lingual cusp remained the same or 0.9, measurements being: 1.0, 0.8, 0.8, 1.2, 0.6. The specimen was kept in A. J. F. saliva for a day longer, when the buccal cusp showed a further softening of 0.7, penetration being, 2.2, the measurements being: 1.4, 3.4, 1.5, 2.0, 2.6. The lingual cusp showed a softening of 0.3, having an average penetration of 1.3, measurements being: 1.6, 1.6, 1.4, 1.1, 1.0.

The specimen was then placed in a 2 per cent. dilution of liquor formaldehydi in water for sixteen hours, room temperature, when the buccal cusp was found to have hardened 1.2 to 1.0, measurements being: 1.3, 0.8, 1.0, 1.0, 0.8, and the lingual cusp had hardened from 0.1 to 1.2, measurements being: 1.4, 0.8, 1.0, 1.8, 0.9.

Specimen 2: The buccal cusp showed a hardness of 1.6, the lingual cusp a hardness of 1.3. It was placed in A. J. F. saliva and 2 per cent. ether in incubator at 90 F. for three and one-quarter hours and tested again. The buccal cusp had hardened 0.5 points to 1.1, measurements being: 0.9, 1.0, 1.2, 1.2, 1.2. The lingual cusp showed a hardening of 0.2 points, having an average of 0.9, measurements being: 0.8, 1.0, 1.3, 0.9, 0.8, 0.9. The specimen was then replaced in the same saliva in the incubator for two days and the buccal cusp showed a further hardening of 0.1 point, giving a penetration of 1.0, measurements being: 0.5, 0.8, 1.2, 1.2, 1.0, 1.2, 0.8.

The tooth was then placed in J. H. saliva, at room temperature for eight hours, when the lingual cusp showed a softening

of 0.6 point or an average of 1.5, measurements being: 1.2, 1.4, 1.1, 1.9, 1.9, 1.7, 1.0.

The tooth was then placed in A. J. F. saliva, in incubator for fifteen hours, when the buccal cusp was found to have softened 3 points to 1.3, measurements being: 1.4, 1.3, 1.3, 1.2, 1.2, while the lingual cusp had hardened 5 points to 1.0, measurements being: 0.9, 0.9, 1.0, 1.1, 1.1.

The specimen was put in A. J. F. saliva in incubator and the saliva was changed every half hour. In four hours, the buccal cusp had hardened 2 points to 1.1, measurements being: 1.2, 1.2, 1.1, 1.2, 1.0, 1.2, 1.0, while the lingual cusp remained about the same, showing also a penetration of 1.1.

The specimen was then placed in A. J. F. saliva and 2 per cent. ether in incubator for twenty-four hours, when the buccal cusp was found to have softened from 0.5 points to 1.6, measurements being: 0.9, 0.8, 2.1, 1.4, 2.8, 1.6, 1.4, and the buccal cusp had softened 0.2 point to 1.3, measurements being: 1.4, 1.3, 1.2, 1.2, 1.3.

Then 5/1000 of an inch was ground off the tooth surface and the cusps were again measured to see how they would compare with the original tests. The buccal cusp showed an average penetration of 1.7, one more than the original test, measurements being: 1.7, 1.8, 1.6, 1.8, 1.6, while the lingual cusp showed exactly the same hardness, having a penetration of 1.1. The tooth was then placed in the incubator with A. J. F. saliva changed every half hour for six hours. The buccal cusp hardened 0.4 point to 1.3, measurements being: 1.9, 0.9, 1.2, 1.3, 1.0, 1.5, 1.2. The lingual cusp had softened 0.1 point to 1.2, which was practically remaining the same, measurements being: 1.2, 1.4, 1.2, 0.8, 1.2, 1.4.

The tooth was then placed in A. J. F. saliva and ether in incubator over night, when the buccal and lingual cusps showed an equal penetration of 1.3, the buccal measurements being: 1.4, 1.0, 1.5, 1.4, 1.3, and the lingual measurements being: 1.2, 1.2, 1.4, 1.2, 1.4.

This softening and hardening of enamel has a very practical bearing in relation to mouth cleansing and the use of brush and dentifrices. Enamel that in its hardest state would only show insignificant wear to dentifrice grit and friction in a temporarily softened state may, through a good brushing with grit, lose a very material amount of tooth structure. This softening and hardening may readily account for the reason why some patients, especially those fond of fruit, wear their teeth down to the gum, at a comparatively early age. The mere friction of mastication is sufficient to take off a layer of enamel softened by fruit or vinegar, which if left to itself might reharden.

I have made hundreds of tests with this machine, but as these are largely of interest to dentists, I will reserve them for another paper, where there will be ample space for the tables that should, of necessity, accompany my findings concerning the variations in the action of enamel, which variations are so extraordinary as to be almost beyond belief.

But that enamel will harden and soften within certain limits, I am convinced. And that this hardening and softening is influenced by the saliva and foodstuffs is to me beyond the question of a reasonable doubt. This action I also believe may occur in dentin, but my tests concerning this latter are not sufficiently numerous to serve as a basis for a positive assertion.

For those who are interested I give a more detailed description of the microdynamometer for measuring the hardness and softness of tooth enamel. This machine can measure to 1/600,000 of an inch just how far a standard punch will be driven into enamel by a standard force.

It is now gauged to measure to 1/300,000 of an inch, which being 1/12 of a micron, the figures are mathematically reduced by a table to 250/1000 of an inch, or tenths of microns, so that as microns or tenths of microns, they can be easily understood at a glance. The tenth of a micron is the unit of measurement used in the table.

The pressure is given by a mercury gauge (9) to which the standard punch (2) with glass scale (3) is attached.

The pressure is applied to the specimen (1) by placing it on an agate slab with parallel sides (4) and the slab on the anvil (5) and raising the anvil by the micrometer screw and ratchet wheel (8) up against the punch until the mercury gauge makes the pressure desired.

The penetration in the specimen is made known by a microscope (6) which is equipped by a specially constructed filar micrometer (7) which microscope was solidly screwed to the anvil (5). This is then adjusted and set so that it can accurately divide into the desired number of parts the 1/1000 of an inch divisions on the glass scale attached to the punch.

A counter weight (10) makes the mercury gauge start at 25 pounds pressure, as the mercury gauge is not accurate before that pressure is obtained.

(11) Electric lights for lighting the specimen and illuminating the microscope.

(12) Ratchet screw for raising or lowering the glass scale attached to the punch.

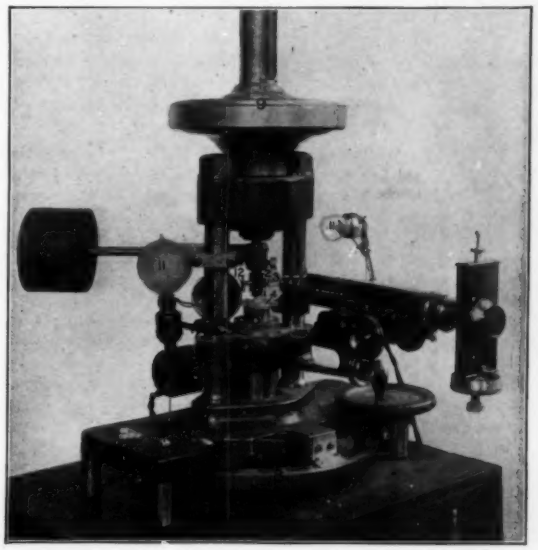

Fig. 1.—Full view of microdynamometer with the exception of the top of mercury gauge.

(13) Various tooth specimens ground and prepared for action.

If, therefore, the specimen is so adjusted and set under pressure so that there is no give between it, the slab and the anvil, it is possible to determine accurately within, say, 1/12 of a micron just how far the punch can penetrate under a given pressure.

For instance, the specimen is carefully ground on the microscope grinder until it has a flat, large base and a small spot on the top of the enamel ground parallel to the base. It is essential that the spot tested should be absolutely parallel to the base in order to avoid side give.

Three punches are used: A hardened steel punch 1/50 inch in diameter, designated as A. This is used purely for ascertaining how far a penetrating force under varied conditions will drive it into the enamel.

A punch consisting of an iridium point set into a brass rod which is used to determine the action of acids on enamel, whether erosion or swelling.

A diamond punch designated as D, ground flat 1/50 inch in diameter, and used at a pressure of 25 pounds.

All of these punches are first set on the specimen, placed on the anvil at a pressure as high or higher than they are to be

used on the test, as a preliminary to any measurements being taken.

The A punch, unless otherwise stated, will be first set at 75 pounds, then the pressure reduced to nothing. Then, without moving the specimen in the agate slab that is ground parallel, the slab is moved so as to place a new area of enamel under the point. The punch is then placed at 5 pounds pressure and a reading taken through the microscope on the glass scale attached to the punch. The pressure of 75 pounds is then exerted for ten seconds, when the pressure is reduced to 5 pounds and a reading taken. The difference is the penetration.

For various readings on the same enamel surface during a single test, the agate slab is moved as desired, but the specimen is not moved on the slab as that would necessitate a new setting.

The same procedure is used with the D punch as the A or B punch. The times and pressure varying according to the test desired.

The same procedure is followed with B punch where acid action on enamel is to be determined. The specimen is set at 10 pounds, then reduced to 5 pounds and released, and again placed at 5 pounds until the same reading is always obtained. Then the acid is applied and at desired intervals, the point is placed on the enamel and the readings taken, showing erosion or swelling or a negative result as may be the case.

A negative result with the B punch may be followed with tests with the A or D punch that show softening to an astonishing degree.

ABSTRACT OF DISCUSSION

DR. G. V. I. BROWN, Milwaukee, Wis.: I believe that when Dr. Head has established the facts pertaining to saliva and enamel as he has presented them to-day, and there seems little reason to doubt that they will be established, and when this knowledge may be fitted into its proper niche in the greater structure that is building in the pathology of the different bodily divisions, then saliva will have a significance that we have never before accorded it.

DR. C. J. GRIEVES, Baltimore: I did some work for the American Society of Orthodontists on decalcification of enamel, and I soon found that I knew nothing about the saliva and could not find many who did know anything about it. There are many things said, but there is little known as to the difference between living and dead saliva, if I may use that term. I found that enamel reacted very differently to these two kinds of saliva. Dr. Head had done some work along this line in regard to the ordinary aqueous solution and an acid solution in the saliva. The mucoid element in saliva is commonly condemned, and rightly so in the carious mouth in which the glycogen or carbohydrate portion is over 25 per cent., for it then becomes the normal habitat of that caries-producing organism, the decalcifying organism; I believe that normal mucus in the normal mouth is what makes for tooth protection, as it has already been shown to do in the gastro-intestinal tract. That is what makes the difference between the saliva solution and the aqueous solution.

I further found that all alloys were disassociated electrolytically in the mouth and we might well reason that enamel is decalcified by the same process which shortly destroys smooth surfaces of alloys in the mouth; the only substances not subject to disassociation are the mucoid or gelatinous substances; the common mouth mucus belongs to this group and I believe out of the mouth it protected the enamel from acid disassociation in Dr. Head's test-cases, as I am sure it does by a film in the mouth. We all have seen acid decalcifications produced by orthodontia appliances. These decalcifications are said to be rubbed out by prophylaxis, but I do not believe this. I think that the intercement substance has been destroyed by acid between the enamel rods and the interstices left are filled with mucus and the decalcified spot apparently disappears. If it is desiccated, it will then show up as an opaque spot. I firmly believe in the protective action of vital mucus in normal cases, but not when there is over 25 per cent. carbohydrate and the mucus is acid from fermentation. In erosion the mucus is nearly all in solution and there are few films on the teeth. Every normal tooth is covered by an alkaline film; where there are few films and the mucus is in solution, the action of acid sodium phosphates and calcium phosphates produces erosion.

DR. JOSEPH HEAD, Philadelphia: I have done this hundreds of times with the same characteristic results. I have convinced myself, and now I want somebody else to try it.

DR. E. S. TALBOT, Chicago: Dr. Latham and I have been working on this for perhaps ten or twelve years from the internal point of view. We took the ground that these changes in the enamel were due to changes in the blood, and we actually demonstrated pathologic conditions of the dental pulp and the tissues which as far as we went are no doubt correct, but that work does not interfere at all with this work that Dr. Head is doing. I am not sure but we shall find that the work which Dr. Head is doing here will to a great extent solve the problem of decay of the teeth. That softening of the enamel and dentin take place through diseases of the body, there is no question. We have all seen enamel soften and the teeth decay very rapidly in tuberculosis and other diseases; the point was to prove that softening and decay did take place—I believe that they do—by establishing a degeneration of the dental pulp and the tissues of the cementum and enamel. The work which Dr. Latham and I have been doing in demonstrating that the softening of these tissues may take place from systemic conditions, added to Dr. Head's work, will help to solve this problem. It seems strange that this softening and hardening should take place in so short a time.

DR. JOSEPH HEAD, Philadelphia: I cannot explain how these things occur, because I do not know. I am simply in a maze of astonishment. I am convinced that enamel will harden and soften. Since this has come to my attention, I have noticed spots that apparently seem to disappear, and I have had other dentists make the same observations.

If that spot disappears, would not this prove that the enamel is not the dead, inert substance that we are supposed to consider it? I cannot help feeling that the enamel is undergoing a series of changes, a sort of unseen action in itself, and that it is capable in its own molecular being of softening and hardening, something similar to the Bermuda rock which hardens under certain conditions. It is nothing unusual for crystals to harden and soften again.

A CLINICOPATHOLOGIC STUDY OF CARBON MONOXID POISONING *

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AND
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REMARKS BY DR. MC CONNELL

Through the courtesy of Dr. Charles K. Mills, I am enabled to make this report of a fatal case of poisoning by carbon monoxid, the patient having died in his service at the Philadelphia General Hospital. As a recital of mere symptoms is almost valueless in these days of search for ultimate conditions, Dr. William G. Spiller kindly undertook the pathologic study and by his unusual findings established a sufficient reason for this presentation. I take this opportunity of expressing my appreciation of Dr. Spiller's kindness in associating his microscopic work with my clinical study.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Department of Neurology and the Laboratory of Neuropathology of the University of Pennsylvania and from the Philadelphia General Hospital.

Poisoning by carbon monoxid may be divided into three great classes, the division being determined by the mode of onset of the symptoms: acute poisoning, chronic poisoning and relapsing carbon monoxid poisoning.

Under acute poisoning are included those cases in which the manifestations appear very promptly after the exposure of the individual to the toxic agent, whether such exposure be accidental or intentional. The symptoms include nausea, an indefinite feeling of illness with fulness of the head, headache, vertigo, great muscular weakness, and, if the influence of the gas is continued, drowsiness, unconsciousness and loss of control of the sphincters. Muscular twitchings or even convulsions sometimes occur. The skin and mucous membranes may be cyanotic and occasionally an erythematous rash resembling frost-bites may be seen over the malar prominences.

The sequelae of acute poisoning include pneumonia, cardiac palpitation, localized hyperemias, gastro-intestinal disturbances, transient glycosuria, cutaneous eruptions, localized edema and gangrene. In the nervous system, paralyses of central or peripheral type and choreiform movements are seen, persistent headache is complained of and mental changes take place, often only mild hallucinatory states but more commonly distinct confusional insanities.

Under the heading of chronic poisoning by carbon monoxid are placed those cases presenting headache, nausea, vertigo, general weakness and anemia with some slowness of intellectual activity and failure of memory. These are all symptoms of the acute type, but appear gradually in individuals who are chronically exposed to the toxic action of carbon monoxid.

The third class is designated as relapsing carbon monoxid poisoning, a term used to indicate the condition in those who, having apparently recovered from the initial effect of the poison, develop after a period of fair health a grave type of symptoms leading to death. Coplin, in 1905, explained the condition most uniquely, but without basis of fact. He said:

> In gas poisoning there takes place a combination of carbon monoxid with the hemoglobin of the hematoblasts present in the bone-marrow. The blood-making process is so crippled that when old injured cells are worn out and must be replaced there are no new cells prepared.

The occurrence of relapsing carbon monoxid poisoning was explained by Becker and Schwerin on the basis of a "deep-seated disturbance of the regeneration of all organs, especially of the vascular walls and the ganglion cells of the nervous system, as is evidenced by the secondary hemorrhages, idiocy, imbecility, etc., which are observed as sequelae."

Accounts of individuals suffering from relapsing carbon monoxid poisoning are not rare, and I could consume time and patience in reciting cases illustrative of the type of disease under discussion. One or two, however, that are strikingly similar will suffice for the purpose.

A man, aged 69, a porter, whose case was reported by Simon in 1868, was asphyxiated by carbon monoxid. His recovery was marked by persistent vertigo and headache. A month after his apparent return to health he developed a right hemiplegia quickly followed by death. Simon also reports the case of a woman, aged 46, who partially recovered from the acute effects of poisoning by carbon monoxid and subsequently developed mental disturbance, convulsions and rigid limbs. She was aphasic and died without any improvement in the nervous symptoms. Edsall calls attention to the fact that symptoms of much gravity often may be caused by a mild attack of poisoning, but these symptoms cannot be attributed to the immediate effects of the carbon monoxid, for Gruber, Sedgwick and Nichols and many others have fully demonstrated the non-persistence of the gas in the blood.

The following is the clinical report of a case which I observed for about six days:

CASE 1.—*History.*—The patient, C. S., was admitted to the alcoholic ward of the Philadelphia General Hospital in a stuporous condition, Nov. 28, 1911, supposedly suffering from alcoholism. There was no evidence of paralysis or other physical disability. As the patient did not improve she was transferred to the medical ward on December 1.

Except for very slight mental improvement the condition of the patient remained unchanged and she was transferred to the neurologic wards on Dec. 13, 1911.

From her son it was learned that the patient had always been well; she had never had a sick day until two weeks before admission when she became mopey, dragged her feet, seemed tired and wanted to lie down. She talked, took nourishment, did not have pain and made no complaints. Her last two days at home were notable because of the loss of control over the bladder and bowels. About three weeks before admission she was overcome by coal-gas while sleeping. She was found unconscious and taken to a hospital where after ten hours she recovered consciousness, and in two days was discharged fully recovered and able to attend to her usual duties. This condition of good health lasted but a few days. Her family, past medical and social histories are immaterial. Her son said that she complained of the stiffness of the upper extremities, but attributed it to the artificial respiration movements employed at the hospital.

Examination.—Dec. 14, 1911, the patient was examined by Dr. Mills and myself. She was unconscious, lying on her left side, irresponsive to sensory stimuli, that is, she showed no change of countenance when pricked with a pin, although the plantar reflexes were very active. Her face had the appearance of general muscular contraction, giving to it a frowning or stern expression, a sort of squeezed expression. The corrugatores supercilli, the orbiculares palpebrarum and zygomatici muscles were apparently spastic. The jaw was tightly closed.

The malar-orbiculopalpebral and the fronto-orbiculopalpebral (McCarthy's) reflexes were very prompt. The left pupil was slightly larger than the right, which was irregular. Both reacted promptly to light.

The upper extremities were very spastic in the right-angle position at the elbows with the arms held close to the sides and the wrists and fingers semiflexed. All the deep reflexes, muscle- and tendon-jerks were plus. Those examined were the von Bechterew, the coracobrachial, the biceps, the triceps and the radiocarpal.

The abdominal reflexes were present. The patient was incontinent of urine and feces.

The right lower extremity was spastic in flexion at the knee and on the pelvis. The left lower extremity was spastic, less so than the right, and almost in extension. The deep reflexes were present and somewhat exaggerated, probably markedly so but restrained by spasticity. Delayed ankle-clonus, persistent and marked, continuing for some time, was present on both sides.

The plantar-metatarsal and metatarsophalangeal reflexes were marked. The small toes went down, but on careful selective minimal stimulation of the soles of the feet the great toes were extended more than their quiet position which was one of permanent Babinski.

Course.—The condition of the patient steadily became worse with the development of spasticity of the soles of the muscles of mastication, so that the stomach-tube feedings were supplanted by nasal feedings, which latter became unsuccessful because of regurgitation of the liquid nourishment and its entrance into the larynx.

The patient died on Dec. 17, 1911, nineteen days after admission to the hospital and forty days after the asphyxiation by carbon monoxid. During her residence in the hospital she had no fever except the terminal rise of temperature to 103 F. The pulse-rate was uniformly fast, averaging from 90 to 100 beats per minute. Respirations were between 20 and 25 per minute, until the final shallow breathing set in. The blood-pressure unfortunately was not measured, but at all times to the finger the pulse was soft and easily compressed.

Laboratory studies of the urine showed no albumin, no sugar and no abnormal microscopic findings. Examination of the blood gave 92 per cent. of hemoglobin, 5,890,000 red cells and 14,300 white cells. The Hoppe-Seyler test for carbon monoxid hemoglobin was negative, the resulting color being brown. This was not made, however, until six weeks after the intoxication.

The especial clinical interest in this case lies in the time which elapsed between the initial poisoning and

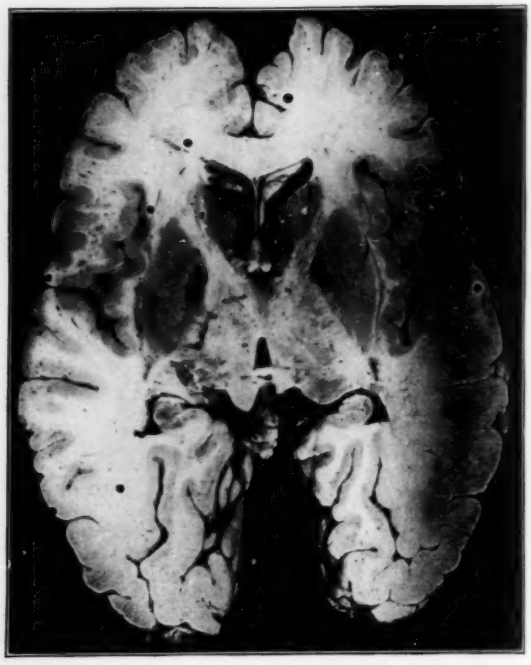


Fig. 1.—Symmetrical areas of softening in the inner segments of the lenticular nuclei.

the development of the grave symptoms, in the bilaterality of the motor symptoms, in the intense spasticity present and in the absence of distinct vasomotor or trophic symptoms.

As I have already stated, the weight of opinion seems to be in favor of the non-persistence of carbon monoxid in the blood and also the non-cumulative action of the gas. There must be, therefore, to explain the relapse, some physical or chemical process, originated by the poison and continuous in its action after recovery from the immediate effects of the acute intoxication. This I leave for Dr. Spiller to elaborate. In the paper by Dana on the functions of the corpora striata the statement is made that "in severe gas-poisoning there is a double softening of the lenticular nucleus due to thrombosis." This is the gross pathologic condition found in many of the reported cases, and fully explains the bilateral motor symptoms which conform to the type spoken of by Mills and Spiller in that the paralysis is less severe in lenticular disease than in capsular lesions.

Finally, many writers call attention to the distinct trophic cutaneous symptoms, but the only suggestion of a skin lesion in this case was the slight erythematous eruption over the cheeks and nose, somewhat like the appearance described by Peterson and Haines. Despite the fact that the comatose state lasted for days there was not a sign of decubitus or any gangrenous process.

REMARKS BY DR. SPILLER

The Betz cells in the case, reported from the clinical aspect by Dr. McConnell, are in a fair state of preservation, and there is little change in the paracentral lobules. The cells of the anterior horns of the spinal cord are well preserved, both in the cervical and lumbar regions. The vessels of the spinal pia and of the pia over the paracentral lobules and medulla oblongata are moderately thickened, and there is a very slight round-cell infiltration of the pia.

The inner segment of each lenticular nucleus shows a well-defined area of softening (Fig. 1). These areas are almost exactly equal in size, and have almost exactly the same upper and lower limits. The vessels within these areas of soften-

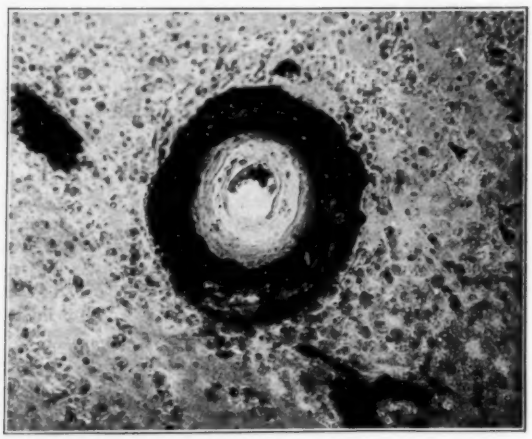


Fig. 2.—Calcified vessel in the area of softening in the lenticular nucleus.

ing show calcification of their walls (Fig. 2), so that they stain purple with hemalum, and black by the Weigert medullary sheath method. Numerous round or irregularly shaped masses, most of them having the structure of corpuscula arenacea, are found throughout the softened areas (Fig. 3).

The first thorough study of the encephalomalacia following carbon monoxid poisoning seems to have been made by Klebs; this honor is given to him by Hedrén.[1] Bilateral softening of the lenticular nucleus has been observed for many years as a result of carbon monoxid poisoning, and seems to be confined to the inner segments, but Oppenheim has written in the latest edition of his text-book that the method by which this softening is produced is not fully understood. The symmetrical softening of the lenticular nucleus always suggests carbon monoxid intoxication but it may occur from other causes, as Runeberg has shown (Hedrén). In this paper I report a case in which a history of gas-poisoning could not be obtained. The bilateral lesions were not quite so symmetrical as in the case in which a history of gas-poisoning was given.

1. Hedrén: Nord. med. Ark., 1902, ii, 4.

Poelchen,[2] in 1888, was able to collect the reports of twelve cases of bilateral softening of the lenticular nucleus following carbon monoxid poisoning; at least, the inference is that the lesions were bilateral in all twelve cases. He also found similar changes in the inner segments of the lenticular nucleus and its vessels in a person dead from phosphorus-poisoning, so that phosphorus seems to have the same effect as carbon monoxid. The bilateral softening from carbon monoxid poisoning may be remarkably symmetrical, not only as regards the limitation to the inner segments of the lenticular nuclei, but also as regards extent of the lesions upward and downward. Poelchen's explanation of this is that the vessels of the inner segments of the lenticular nucleus are very narrow, even at their origin from the basal vessels, are without anastomosis, without vasa vasorum, and therefore dependent alone on the blood circulating within them. The arteries of the outer segment of the lenticular nucleus are comparatively large, and probably anastomose with the arteries of the island of Reil. If the carbon monoxid poisoning lasted long enough, other vessels would become affected.

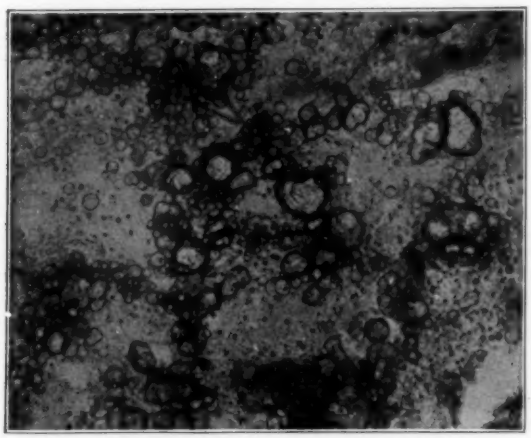


Fig. 3.—Calcareous deposits (corpuscula arenacea) in the areas of softening of the lenticular nuclei.

The most satisfactory explanation for the symmetrical softening has been given by Kolisko,[3] to whom we owe largely our knowledge of the circulation of this part of the brain. He states that in addition to the long arteries (arteries of cerebral softening supplying the head of the caudate nucleus, anterior limb of the internal capsule and anterior part of the external segment of the internal capsule) arising from the anterior cerebral artery a number of shorter arteries have their source in this artery which also convey the blood in a different direction from that in the parent stem. They are very small, about the thickness of a hair. Similar arteries arise from the carotid, the first part of the middle cerebral artery and the posterior communicating artery. These fine arteries do not anastomose. They supply the anterior part of both inner segments of the lenticular nucleus and the adjoining part of the internal capsule, including the knee. The extraordinary delicacy of these vessels with their almost perpendicular course at their origin is the cause of softening in carbon monoxid poisoning. In no other part of the brain is the circulation through such short and narrow arteries. Kolisko has repeatedly had opportunity in necropsies on those who died a few days after carbon monoxid poisoning to find symmetrical softening in the distribution of these arteries. He thinks the great distention of these vessels, which occurs in the early stage of carbon monoxid poisoning and has been known since the time of Klebs, causes thrombosis and a disturbance of the circulation in these vessels.

Peterson and Haines[4] state that a large number of experiments on animals forced to breathe carbon monoxid, diluted with either oxygen or air, have resulted in showing that the blood-pressure is at first considerably increased as the result of the stimulation of the vasomotor center. A benumbing of this center is then shown by the decrease of the pressure and a distention of the blood-vessels.

From this it appears that Kolisko's arteries of cerebral thrombosis are not concerned in the softening of carbon monoxid poisoning, but as some of these fine vessels of which Kolisko speaks have the same course, the change in the direction of the blood-current affects them equally. Hemorrhage in the distribution of the arteries of cerebral thrombosis is exceedingly rare. Thrombosis, however, has rarely been found in cases of carbon monoxid poisoning. Poelchen, Sibelius[5] and other investigators have searched for it in vain, but it was found by Kolisko and by Hedrén.

Most extraordinary is the apparently complete or nearly complete recovery from the acute poisoning with recurrence of symptoms, possibly terminating fatally. The late symptoms may develop several weeks after apparent health. This recurrence of symptoms was observed in the case reported by Dr. McConnell, and similar examples may be found in the literature. I refer merely to one, as in the extreme spasticity it resembles the case we have studied.

Hedrén reports the case of a patient who, having been overcome by carbon monoxid poisoning, was brought into the hospital unconscious and after twelve days was dismissed apparently entirely recovered. He continued well three days and then began to have severe headache and pain in the extremities. Memory began to fail, general muscular rigidity and stupor developed, and death occurred about twenty-five days after the first return of symptoms. The rigidity was so great that the patient was brought from a lying to a sitting position with great difficulty, as he was "stiff as a board." Alteration of the vessels was found in the left lenticular nucleus with thrombosis of the small vessels of this part. Small areas of softening and small hemorrhages were found in the spinal cord.

How are we to explain these delayed symptoms? There seems to be no support for the view that the occurrence of symptoms immediately or shortly after carbon monoxid poisoning depends on whether illuminating gas or coal-gas was the source of the intoxication. The carbon monoxid affects the nerve-cells as well as the nerve-fibers (Sibelius), and yet we can hardly attribute the delayed symptoms to changes in the nerve-cells alone. They were not conspicuous in the case reported in this paper. Delayed symptoms may depend in large measure on previous alteration of the vessels, as by age, and on the concentration of carbon monoxid in the gas breathed. Most cases of severe mental disturbance, in old persons, have been of the delayed type (Sibelius).

2. Poelchen: Virchows Arch. f. path. Anat., cxii, 1888.
3. Kolisko: Wien. klin. Wchnschr., March 16, 1893, p. 191.
4. Peterson and Haines: Text-Book of Legal Medicine and Toxicology, ii, 1904.
5. Sibelius: Monatschr. f. Psychiat. u. Neurol., 1906, xiii, Erg. Heft.

Carbon monoxid causes fatty degeneration of the intima and muscular coat of the vessels of the central nervous system. Sibelius attempts to give an explanation for the late symptoms, and attributes them especially to the alteration of vessels. The vascular changes progress after carbon monoxid has been removed from the blood, and carbon monoxid does not remain more than a few days in the blood. Wachholz, however, demonstrated the gas in the blood in a fatal case seven days after the poisoning. Sibelius thinks it is possible that from carbon monoxid poisoning several organs become affected, and that by imperfect elimination injurious metabolic substances are retained and affect the cerebral vessels. In some cases the vascular changes are not progressive, but their results are progressive from continued imperfect nutrition. Hemorrhages may occur and cause progressive symptoms, and yet hemorrhages have only occasionally been found. Aside from these possibilities we must assume, according to Sibelius, a progression of the vascular changes, although we do not understand the method. This I would explain, in part at least, by calcification. Sibelius makes no mention of calcification, and I do not know that anyone else has done so. The nearest approach to such an observation is by Poelchen. In a case in which he examined the vessels, drawn out of the lateral perforated substance at the base of the brain, which supply the inner part of the lenticular nucleus, he found fatty change in the intima and muscular coat, and in the larger vessels the muscular coat was calcified; all other vessels in the brain were normal. He does not mention calcification of the small vessels in the inner segments of the lenticular nucleus.

Calcification of the capillaries has been found in different parts of the brain under different conditions; also in the globus pallidus by Wollenberg (cited by Obersteiner). It was very pronounced in the inner segments of the lenticular nucleus in the case of gas-poisoning described in this paper, and was present in milder form in the same region in the case to be reported with similar symptoms but without a history of gas-poisoning, although the failure to obtain any history makes the etiology uncertain. In no reported case have I found mention of the deposit of calcium loose in the softened tissue or in the form of corpuscula arenacea, as in the case here described. This calcification of the small vessels of the inner part of the lenticular nuclei is probably a progressive process and as it increases impairs more and more the nutrition of the areas supplied by the affected vessels. It doubtless causes the progressive spasticity of the limbs, but it is difficult to explain the stupor from the limited lenticular lesions. It is worthy of note in this connection that in the cases of the family form of softening of the lenticular nuclei reported by Wilson the mental condition seems to have been peculiar.

I have sought an explanation for the formation of lime salts in the brain in Wells' "Chemical Pathology"[6] and find it stated there that in calcification the calcium salts come from the blood, where they are held in solution or in suspension by the proteids, either as the carbonate and phosphate themselves, or as calcium-ion-proteid compounds, or perhaps both. This suspension or solution is an unstable condition, possible only because of the extremely small proportion of calcium in the blood (about 1:10,000), and therefore capable of being overthrown by increased alkalinity of the blood, changes in the proteids or changes in the quantity or composition of the calcium salts.

Retrogressive changes in the tissues are a sine qua non. Hyaline degeneration, the chemical nature of which is not understood, is a very favorable condition, as also is necrosis when absorption is deficient.

In the areas that are to become calcified the circulation is very feeble, the blood-plasma seeping through the tissue as through any dead foreign substance of similar structure, without the presence of red corpuscles to permit of oxidative changes.

Calcification may be caused by utilization of the proteids of the fluids by the starved tissues so completely, because of its slow passage through them, that the calcium cannot be held longer in solution. This idea has little support but has been advanced. The possibility of the formation of calcium-binding substances within the degenerated area has always seemed more attractive, and has received the most attention by investigators.

Following is the report of a case which presented the same clinical appearance as did the case of gas-poisoning, but the patient was brought into the Philadelphia General Hospital without any history, and nothing could be learned of his previous condition.

CASE 2.—E. B., aged 70, was admitted Dec. 22, 1911, and died Jan. 2, 1912. He was stuporous although he answered questions at times when spoken to, but his speech was incoherent. He muttered and sang in a low voice; he had no idea of place or time, was incontinent and said he heard and saw the Lord. Later he could not be aroused. The right pupil was very much dilated; the left was contracted and irregular. They did not respond to light. There was rigidity of all the limbs, especially at the elbows. The patient lay on his back with head and eyes turned to the right. Both forearms, especially the left, were strongly flexed on the arms. Extension of the forearms passively was difficult, and when the left was extended the patient screwed up his face as though in great pain. Pricking the face with a pin caused no change in expression. The lower limbs were slightly flexed at the knees but were more easily extended than the upper. The man moved the right arm and both legs at times quite freely, but did not move the left arm—at least no voluntary movement of this limb was noticed. The biceps and triceps reflexes were exaggerated. The patellar reflexes were not obtained, probably because of the spasticity. Plantar stimulation gave plantar flexion.

Symmetrical areas of softening were found in the inner segments of the lenticular nuclei. They were larger than in the case with a history of gas-poisoning, and did not have exactly the same superior and inferior limits. The small arteries in the areas of softening showed a moderate degree of calcification, but corpuscula arenacea or other calcium deposits were not found.

Dana[7] probably was the first American writer to call attention to the bilateral softening of the lenticular nucleus in gas-poisoning. The cases described in our report are especially interesting in connection with the extraordinary cases of progressive degeneration of the lenticular nucleus of the family form, described by S. A. K. Wilson.[8] It appears that when the lesions are confined to the lenticular nuclei intense spasticity is produced with apparent paralysis, but power of voluntary motion is really retained, although all movements are awkward and are of less power.

I am indebted to Dr. A. J. Smith for the photographs.

701 North Fortieth Street—2046 Chestnut Street.

6. Wells, H. Gideon: Chemical Pathology, W. B. Saunders Co., 1907.

7. Dana: Jour. Nerv. and Ment. Dis., 1908, p. 65.

8. Wilson, S. A. K.: Rev. Neurol., Feb. 29, 1912, p. 229; Brain, 1912, xxxiv.

SAFETY-RAZOR-BLADE SCALPEL

JOHN B. MURPHY, A.B., M.D., LL.D.
CHICAGO

Every surgeon has more or less often been annoyed by a dull scalpel when a sharp one was very much desired. Furthermore, after a few strokes of the scalpel, especially when made in a firm or resistant tissue, like an old scar, the cutting edge of the scalpel becomes dulled. Sharpening scalpels is a nuisance and at best very unsatisfactory. In order to overcome these objections, I have devised some handles to carry the two types of safety-razor blades most commonly used. After these blades are no longer serviceable for the purpose for which they were intended, they make excellent scalpels. They are cheap and easily obtainable.

The accompanying illustrations are self-explanatory. The ordinary scalpel handle is provided with two arms, united above but not below, between which the knife blade is inserted. To carry the double-edged blade, one arm is provided with two stubs which fit into the two perforations in the blade, so as to hold the blade firmly, and a thumb-ratchet locks the arms, thus making a splendid, double-edged cutting instrument (Figs. 1 and 2, *A*).

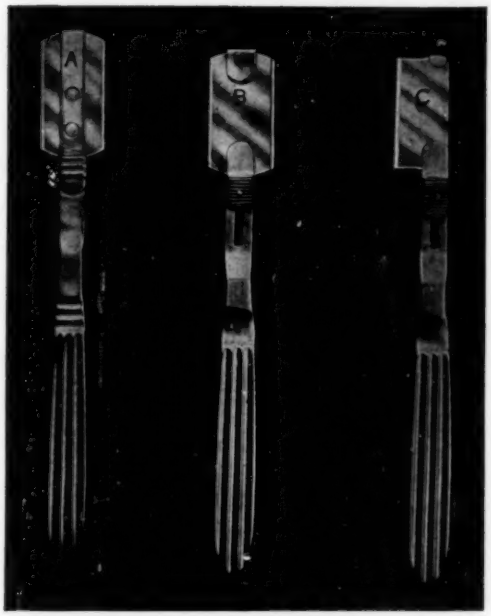


Fig. 1.—Three styles of handles: *A* is used for a double cutting-edged blade; *B* is provided with the flange, which is visible on the right-hand edge of the blade; *C* is the single cutting-edged razor-blade handle.

A second type of handle has the carrying arm provided with a broad flange which protects one cutting edge so that a single cutting-edged instrument, like the ordinary scalpel, is obtained. This scalpel handle has only one arm, which is turned down over the blade on top. The thumb-ratchet when pushed up secures the blade below (Figs. 1 and 2, *B*).

The third type of handle is intended to carry a single cutting-edged blade, like the auto-strap razor blade. It is constructed like the second style of handle except that it has no flange on the carrying arms and is not provided with stubs, this blade having no perforations (Figs. 1 and 2, *C*).

I have used these scalpels for some time in all my work and have found them very serviceable and satisfactory.

104 South Michigan Avenue.

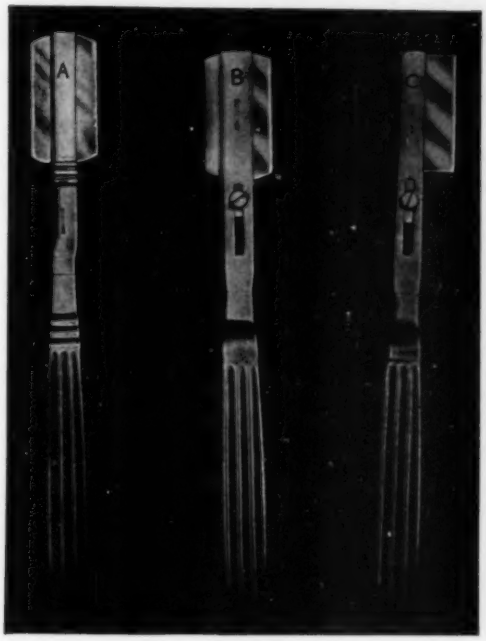
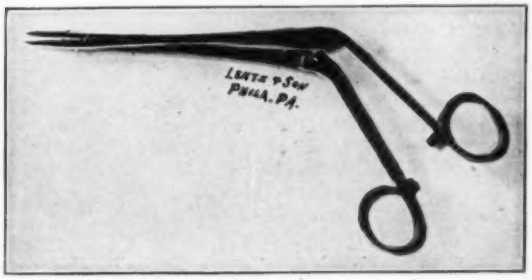


Fig. 2.—Reverse of the three handles. The flange on *B* is now seen covering the left half of the blade.

CLEFT PALATE NEEDLE-HOLDER

GEORGE M. TODD, M.D.
Visiting Surgeon, St. Vincent's Hospital
TOLEDO, OHIO

Much of the difficulty of placing sutures in cleft palate operations may be obviated by the use of this special needle-holder. In operating with the child in the head-down position, using the ordinary needle-holder, vision is obscured by the hand being between the field of operation and the eye. By the use of a needle-holder constructed with the hand portion at an obtuse angle, as shown in the illustration, this difficulty is overcome. The surface of the palate is plainly in sight at all times, and the sutures are readily placed in position.



Cleft palate needle-holder.

The holder, in addition to its angular shape, has a notch on one blade into which the other blade passes when the holder is closed. This prevents any side motion and secures firmness. The needle-bite is small, suitable to the work intended and the size of the needle used. It also has a catch on the finger-holds to fasten the needle securely in its bits.

316 Colton Building.

AVERAGES IN ATTITUDE AND TRUNK DEVELOPMENT IN WOMEN AND THEIR RELATION TO PAIN*

ROBERT L. DICKINSON, M.D.
AND
WALTER TRUSLOW, M.D.
BROOKLYN

PART I. THE MECHANISM OF THREE TYPES OF POSTURE, VIEWED FROM THE SIDE, BY DR. TRUSLOW

Three types of posture, varying according to differing anteroposterior relationships, are here named and discussed: (1) "kangaroo" type; (2) normal or neutral type, and (3) "gorilla" type.

Distinguishing features of the normal type are: (1) the line of gravity of the body passes through important pivotal points; (2) the pelvis is balanced in equilibrium on the heads of the femora, its position being indicated by the angle which the plane of its inlet makes with the horizon; (3) this relation of important pivotal points with the line of gravity and this balance of the pelvis insure an easy balance of all superimposed structures of the body, including the spine in its physiologic curves; (4) the rear perpendicular touches two points, the shoulders and the buttocks (Fig. 1).

The carefully balanced segments of the body are retained in position by nicely balanced muscle forces. In this normal position, the internal organs of the trunk are placed in proper anatomic relation to each other. The position therefore conduces to normal visceral activity.

Anteroposterior deviations from the well-balanced position of the normal type tend toward: (1) mechanical instability; (2) muscle and ligament strain and pain, and bone deformity; (3) abnormal relationship of the viscera of the trunk and therefore toward derangement of their function.

These deviations mainly tend toward two opposite types, which are called respectively the "kangaroo" and the "gorilla" types (Figs. 2 and 3).

There are other etiologic factors, but this paper is limited to pointing out the relation of the *corset* and the relative *height of heel* to the two variants from the normal in posture.

In the accompanying cuts and in the complete paper the three types are compared segment with segment, noting in each mechanical relationships, muscle and ligament equilibrium of strain, and pain and visceral relationship. Treatment is outlined from the standpoints of correction by mechanical support—corsets and shoes—and by prescriptive exercises. The question of other methods of treatment of the abdominal and visceral ptoses is not here discussed.

The "kangaroo" type of posture conduces to strain on and pain or aching of the low back muscles, and of the muscles back of the knees and of the calves. The posture favors the forward-carried abdomen and pelvis, and thus forward displacement of their viscera. Sacro-iliac joint strain is not infrequent. This position tends toward weakening of the long (plantar) arches, but relieves strain on the metatarsal arches of the feet.

In the neutral position there is no mechanical tendency toward the abnormalities outlined. Pathologic conditions may here cause, as in the other conditions they may modify, the strains elsewhere mentioned, but this posture does not cause them.

The "gorilla" type of posture favors strain and pain of the upper back muscles, iliopsoas muscles or of the sacro-iliac joint structures (which may easily be mistaken for low-grade pelvic inflammation, etc.). The position is very liable to cause metatarsalgia or pains

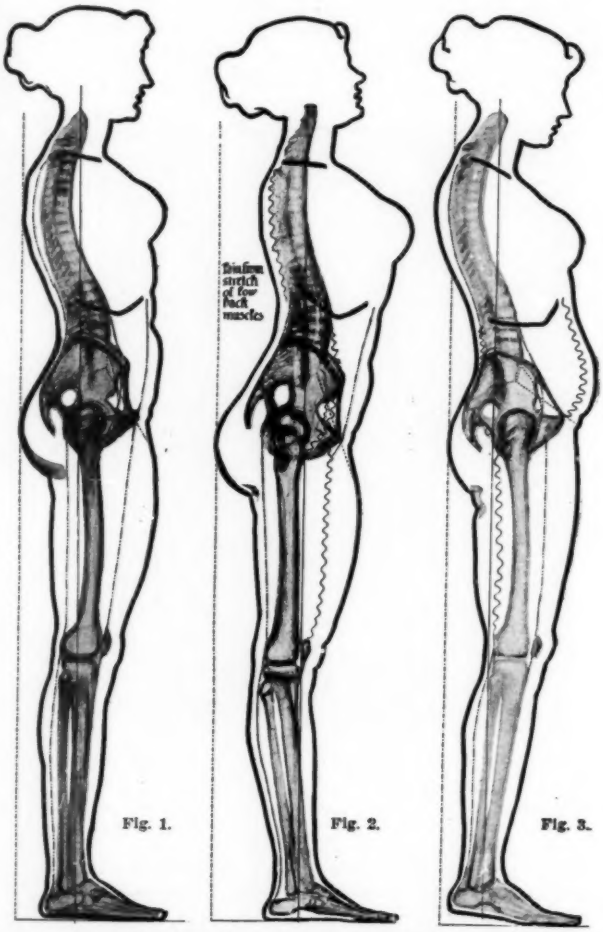


Fig. 1.—Normal or neutral type of posture. Distinguishing features are: (1) Line of gravity of body passes through important pivotal points; (2) the pelvis is balanced in equilibrium on the heads of the thigh bones; (3) this relation of important pivotal points with the line of gravity and this balance of the pelvis prevents muscle and ligament strains, and (4) the rear perpendicular touches the middle back and the buttocks.

Fig. 2.—Kangaroo type of posture. Distinguishing features are: (1) Most pivotal structures of the trunk are carried in front of and those of the lower extremities behind the line of gravity; (2) the pelvis rotates forward downward; (3) the forward carried trunk puts strain on the spinal and pelvospinal ligaments and muscles, and tends toward forward displacement of abdominal and pelvic viscera. Wavy lines indicate muscles relaxed; dot and dash lines show muscles in action.

Fig. 3.—Gorilla type of posture. Distinguishing features are: (1) Most of the pivotal structures of the trunk are carried back of and those of the lower extremities in front of the line of gravity; (2) the pelvis rotates backward downward; (3) the backward carried trunk puts its own variety of strain on the spinal and pelvospinal ligaments and muscles and tends toward backward and downward displacement of the abdominal and pelvic viscera. Wavy lines indicate muscles relaxed; dot and dash lines, those in action.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints.

in the fore part of the foot. Especially is this the case if high heels are worn.

The mechanical treatment of the kangaroo type includes a corset, which shall make strong circumferential pressure on the pelvis, and shall have ascending lines which shall shift the trunk backward (Fig. 4). Moderately high heels, to relieve "knee-back," may at first be worn. Gymnastics must tend toward posture training and toward special development of abdominal, buttock and calf muscles. For the gorilla type, the corset must have strong pelvic pressure and must have lines which shall carry the trunk forward (Fig. 5). A sacral pad will help this. The heels must be lowered as quickly as possible and special foot-braces, with metatarsal arch support, are often necessary. The exercises

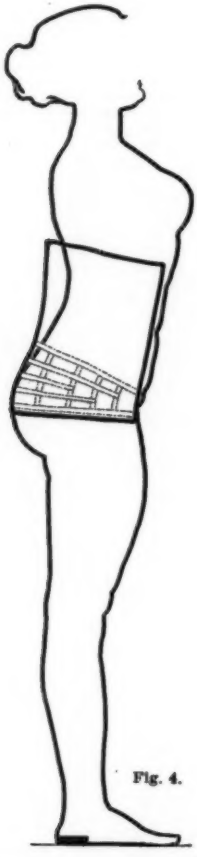


Fig. 4.

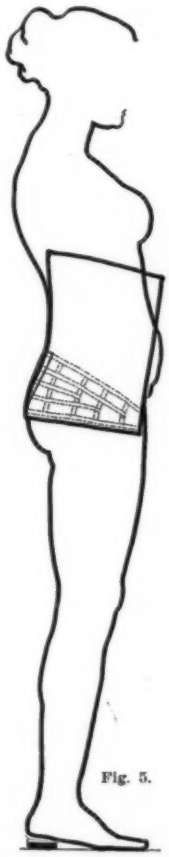


Fig. 5.

Fig. 4.—Mechanical treatment of kangaroo type. The corset is tight, or even reinforced about the pelvis, and its lines are such as to hold trunk backward. The heels may be moderately high to relieve the strain of "knee-back."

Fig. 5.—Mechanical treatment of gorilla type. The corset is tight about the pelvis, and its lines are such as to hold the trunk forward. The heels are lowered to carry knee balances backward and specially padded soles are placed under painful metatarsal arches.

aim toward posture training and toward the development of scapulovertebral, abdominal, anterior thigh, calf and toe flexor muscles.

This preliminary study of the mechanism of three types of anteroposterior posture takes cognizance of the valuable work of Goldthwaite, Reynolds, Lovett, Dickinson, Franklin Martin and others. It could well be supplemented by more in the same direction and by studies of variations from the normal, due to lack of lateral balance.

In conclusion, this paper points out the mechanical instability of habitual body-carriage in front of the line of gravity and to the rear of this line; it draws particular attention to trunk, sacro-iliac, knee and foot strains; it shows the relation of corsets and of heels to these, and outlines principles of mechanical treatment by correcting corsets, proper foot support and by prescriptive exercises.

PART II. AVERAGES IN ATTITUDE AND TRUNK DEVELOPMENT IN WOMEN AND THEIR RELATION TO PAIN, BY DR. DICKINSON

How many clinicians strip patients standing? He who does not misses the chance to detect the source of many an ache. Loath as we must always be to subject

Fig. 6.—Simple office method of taking outlines of the figure. The subject stands against a heel bar on the floor, the bar being pivoted to swing out of the way when not needed and always swinging back to the same mark. The clips that hold the paper are fixtures; the edge of the paper hangs to a mark on the wall or against a drawing board (which should run to the floor). In this way accurate comparisons may be made with past and future conditions, because the paper will always be in the same relative position to the heel bar. A narrow book that acts as a square is held in both hands; in its groove a soft pencil or crayon is caught in place by elastics and with this pencil the profile is followed and the tracing made. The sheet held snugly by hip garter and knee clip exhibits the knee action. The whole is more exact, simple and speedy than photograph or shadow tracing.

women — particularly those of sensitive English and American up-bringing — to the distress of this procedure, the time will come when no man will consider himself careful or thorough in a search for causes of chronic pains about the trunk who does not carry out

Fig. 7.—A group of forty-seven tracings superimposed in order to study averages and extremes. The average shoulder is in fair relation to the buttock, the average chin is forward, breast pendant, abdomen thick, prominent, sagging—whether children have been borne or not—the buttock long and low. Hundreds of the authors' tracings multiply the same lines. Heavy black line normal (antique).

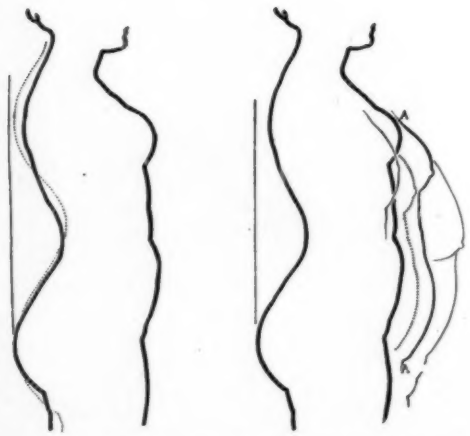


Fig. 8.—While the average back in the scapular region nearly approaches the perpendicular from the buttock, the droop forward of the neck brings an excessive curve in this region which produces a round-shouldered effect; that is, a general tendency to the gorilla type of back. Dotted line the average.

Fig. 9.—Anterior lines of the trunk. The breast drags downward in nearly every instance. Along the abdomen the dotted line and the heavy black line A show the most common averages according to the previous occurrence of pregnancy or not. This average anterior abdominal line which is strikingly in advance of the normal (heavy black) line, shows greater prominence at its lower portion. This is the main average deformity of women.

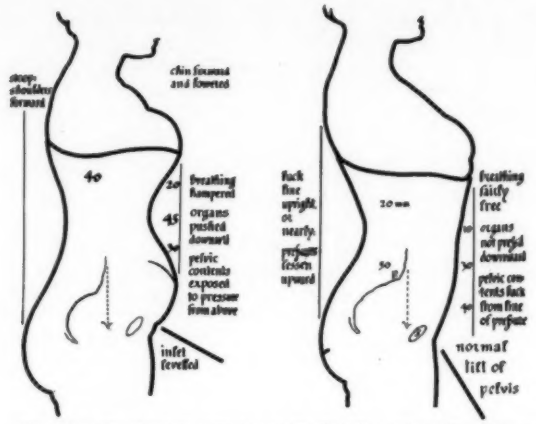


Fig. 10.—The average corset and its defects. Hour-glass shape, maximum pressure at waist line, rib constriction, chin and shoulders thrown forward, inlet leveled. Figures are mm. of pressure.

Fig. 11.—The erect posture of the "tolerable" corset with low areas of pressure in its upper parts and good pelvic inclination.

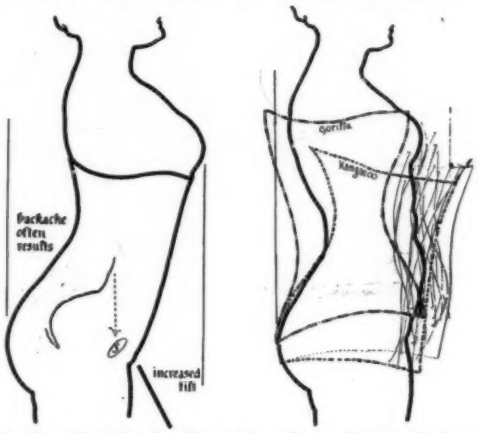


Fig. 12.—"Straight front" corset tends to "kangaroo" type of carriage.

Fig. 13.—A group of outlines of fronts of corsets to show averages and extremes.

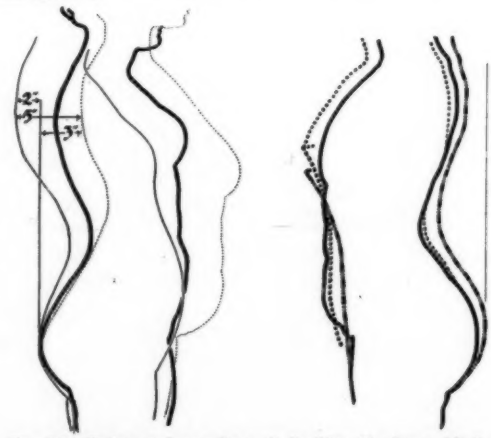


Fig. 14.—Extremes in carriage of shoulder, the heavy black line being the normal. Both the individuals shown by dotted and thin lines were disabled by backache and promptly relieved by correction of attitude, with muscle strengthening.

Fig. 15.—Betterment in carriage from proper corset. The black line without, the fine dotted line with usual corset. The shoulders have been brought backward and the center of gravity altered by better corseting, as shown by dot and dash line, the first step in the gradual process.

such observation as one of the regular details of a systematic examination.[1]

The average civilized woman sags. The average back is nearly upright. The shoulders run only slightly toward rounding, and the chin to drooping. The deformity which is practically constant is protrusion of the abdomen. Relaxed from poor muscle, pushed out by low-hung inner organs, and padded with fat, mostly below the navel, the anterior abdominal wall is in advance of the normal, 1 inch in a large group and 2 inches in yet another large series. The breasts drag down and the buttocks sweep low. Most hips and thighs show fat pads, but these, like the abdominal adipose, are local deformities and not part of a general obesity.

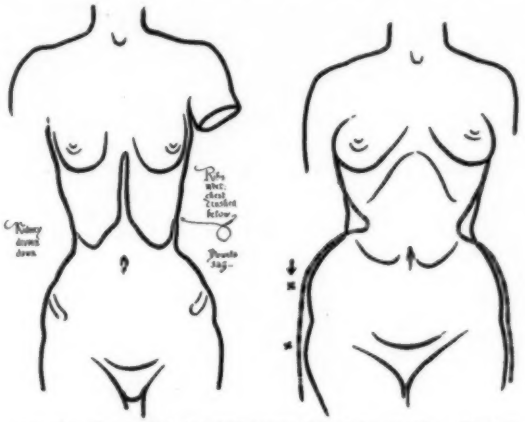


Fig. 16.—Congenital deformity accentuated by corsets. The long trunk type suffering from constriction during period of growth. The angle between the cartilages of the ribs does not admit the finger; kidneys and bowels hang low.

Fig. 17.—Hip-pad and thigh-pad produced by the corset; the "chorus girl" figure. Extreme instance of deformity produced by hour-glass corset. Between hip-pad and thigh-pad the newer form of corset, by its high-pressure pelvic girdle, is producing a second waist line, indicated on the right of this patient.

Drawn from a large number of cases, my tracings show not only the frequency of the defects listed above, but the persistent presence of faulty muscles all about the waist line, and a very constant narrowing of the chest and of the angle in front, between the cartilages of the ribs.

Among postures, one-third were found good, one-half defective. Certain types of body form are particularly susceptible to defective carriage and defective corsets, such as the individual with the long and slender trunk, and the overfeminine figure.

The corset may be tolerated, except during active exercise, if neutral.[2] Corsets other than harmful are not much in evidence. The hour-glass form, with its pressure mainly at the waist line and its downward drive, was determined to be still the average design, being found in fully two-thirds of the cases studied. In one-half the cases all pressures ran high. The spring or gap of the corset when unhooked — the most convenient measure of amount of constriction — should not exceed 2½ inches. The tight corset harms vigorous women little, weaker women, greatly. But there is no substitute for Nature's corset — the well-set-up anterior abdominal wall.

The remedy lies in thoroughness in examination, particularly among women with backache and enteroptosis and neurasthenia; in muscular training continued after the year it is usually abandoned — the fifteenth — and systematically ordered after labor, and in the supervision of gymnastics and of dress.

We have advocated stripping, at least to the union suit, or to the cape shown in Figure 6. To avoid delay in office work a dressing-room, however small, is desirable; to avoid criticism, a nurse or attendant is advisable, though not essential; to save disappointment, results should not be promised except in terms of months and with the understanding that defects of attitude and atrophy and pressure are but one of the causes of the ache and weakness. The secret of success is persistence, and no more difficult task presents itself to the practitioner than the remodeling of the muscular habits of the flabby and obese or the self-indulgent. Printed slips or typewritten sheets of instruction concerning exercise and carriage; a diary or daily notes to be submitted to the physician at stated intervals, somewhat after the manner of the sanatorium inquiry, showing what has been done daily in the number of exercises; cold sponging, and regulation of nutrition—all these are essential to results.

The eye, once having been led to look for trunk defects, becomes trained to see them quickly, especially if a few of these have been traced in order to develop the powers of observation; or the office attendant may be trusted to draw attention to many of these matters. It is the old question of thoroughness versus superficiality — of a patient hunt for less obvious causes.

168 Clinton Street—67 Hanson Place.

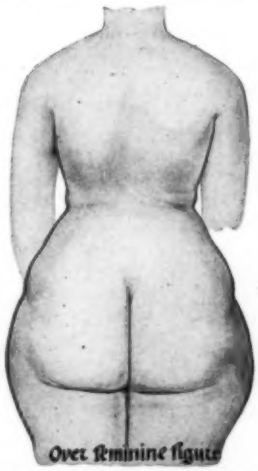


Fig. 18.—The overfeminine type. Large hips heavily padded, with small upper trunk and narrow lower chest and atrophy of back muscles causing rebellious backache.

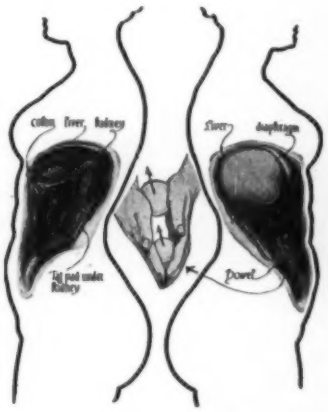


Fig. 19.—Only by muscular action with fascial integrity can the mobile masses in the wedge-shaped cavity be held from slipping downward.

1. Such an examination is outlined in the complete article. Here the illustrations and their legends must carry nearly the whole of the findings of my inquiry.

2. Dickinson, Robert L.: Toleration of the Corset; Prescribing When We Cannot Proscribe, Am. Jour. Obst., June, 1911.

ABSTRACT OF DISCUSSION

DR. ROBERT B. OSGOOD, Boston: The question as to whether a fairly vicious corset has any marked immediate effect on the position of the organs, especially the stomach, has interested me. Two *x*-rays of a young woman of 20, in good health and without symptoms, were taken one directly following the other after a bismuth meal, both in the stand-

ing position. The first shows the lower border of the stomach at the level of the umbilicus. The second, after putting on the corset, shows the stomach crowded upward almost 10 cm. One can easily imagine the extent to which the organs below the hour-glass corset constriction must be crowded down and a sagging stomach or colon be made still more ptosed and there retained. The question at once arises as to what effect attitude alone has on the causation of back pain. Of 130 tracings of a college class taken alphabetically 53 per cent. showed bad postures and 47 per cent. neutral or good. Of the faulty attitudes, 4 per cent. could be classed as kangaroo and 49 per cent. as gorilla. The lumbar lordosis was increased in 17.6 per cent. and diminished in 9 per cent. and considered to be within normal limits in 73.4 per cent. It would seem that faulty attitude may exist, at least for a certain time, without necessarily giving rise to subjective symptoms of pain, when we consider that while 53 per cent. showed a bad position of standing only 5 per cent. had pain. The prevalence of faulty attitudes in women is suggested by this series. In 760 cases of low back pain in the clinic of the Massachusetts General Hospital 70 per cent. of patients were men. Of course, some of these were traumatic but a large number were classed as attitudinal. Since so large a proportion were men, the corset alone cannot be responsible. I think we must consider the exact localization of the pain in these cases of static back or postural strain as still somewhat *sub judice*. That a constant strain on the lumbar muscles may induce pain referred to their insertions and attachments seems entirely rational and undoubtedly explains the pain in many cases when these faulty postures become constant. There would seem also to be strain on the sacro-iliac joints, pivotal as they are. In women, following childbirth, we are familiar with the train of symptoms which their continued relaxation sometimes produces, and when we can appreciate tenderness to deep pressure localized over the posterior sacro-iliac ligaments and can cause pain by motions which strain these joints alone, I believe we may suppose strain of these joints to be a cause of pain. Certain it is that treatment directed to the protection of these joints relieves the discomfort.

AFTER-RESULTS IN TUBERCULOUS PATIENTS TREATED DURING THE YEARS 1891-1911 AT THE SHARON SANATORIUM *

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This paper is the result of an investigation of the present condition of patients discharged from the Sharon Sanatorium from the time of its foundation in 1891 to Jan. 1, 1911; that is, no patient will be reported who has not been away from the sanatorium at least one year.

In the nineteen years thus covered 592 patients have been discharged. Of these, twenty-two stayed so short a time that they were considered not treated. Nine others were admitted for some other complaint than tuberculosis of the lungs. Twenty-four did not react to tuberculin and were termed merely suspected cases. Seventeen in the early years of the sanatorium were discharged as well, this term being used, it may be, because at that time there had been no definite rules formulated by a nomenclature committee. These seventeen patients also are not considered in this report, since in practically all instances they were admitted with the diagnosis of phthisis questioned, or as having bronchitis, and received no tuberculin test. This leaves 520 patients, of whom forty-eight were discharged as "not improved," 175 as "improved" and 297 with the disease "arrested" or "apparently cured."

Of the forty-eight non-improved, all died as might be expected, a mortality of 100 per cent. Of the 175 discharged as improved, 107, or 60 per cent., died; in fifty-one, or 29 per cent., the condition is reported good, and seventeen, or 9 per cent., have not been traced. Some of the improved patients have continued in a very gratifying condition of health, and frequently they have arrested their disease and have taken up their life-work again. The following history is fairly typical:

CASE 190.—This patient, without any family taint of tuberculosis or previous severe illness, had had a cough for a year following an acute cold. She presented on examination well-marked dulness with harsh respiration at both apices, especially the left. Numerous fine and medium moist râles were present over the upper half of the left side front and back and at the extreme lower base. The sputa showed tubercle bacilli. The patient stayed ten months in the sanatorium and has remained in excellent condition for ten years except for an attack of appendicitis which required operation. She was a professional singer and has taken up her work again, holding a position in a large city church.

In 1902 a report was made of seventy-nine patients with arrested cases treated at Sharon Sanatorium.[1] Of these, six, or 7.5 per cent., have not been heard from recently, and twenty-two, or 26.5 per cent., have been reported as dead. This leaves at least 66 per cent. of this series of patients still living after ten years, and perhaps a higher percentage, if some of the six who have not been heard from could have been reached. Practically all of the 66 per cent. report that they are in good physical condition, and many of them are wage-earners. The following case may be cited in illustration:

CASE 49.—Two brothers and two sisters of this patient died of consumption. Two months before entrance she had a sudden hemoptysis of fairly large proportion. Examination showed dulness in the middle of the right back with fine râles. Tubercle bacilli were numerous in the sputa. The patient was discharged in 1894, seventeen years ago, and has remained well although her work has been hard as a domestic in Boston, until about a year ago when she married and returned to her old home in Ireland.

As before stated, we have at this time 297 arrested and apparently cured cases to report. All which received the latter term (forty-four) would have been considered arrested cases according to the previous method of tabulation, and for the purpose of this paper we shall consider them as arrested cases. From this point of view it is only fair to say, however, that "arrested" used to mean more to us than the present use of the term allows, for if tubercle bacilli were present at the time the patient was discharged, the term "improved" was formerly the most favorable one used. On the other hand, in the early years of the sanatorium a case was frequently called "arrested" after a shorter period of residence, even though at times only a little over a month had elapsed. Such patients had lost cough and expectoration, if any, almost immediately after entrance. They had learned the regimen of the sanatorium and had good home environments. In practically all such instances the after-results have justified the expectation expressed by the term. According to the present nomenclature, however, certain patients have gone out as "improved" because of residence limited to less than two months. Numerically, such cases have been as many as those

* Read at the Annual Meeting of the American Climatological Association, at Hartford, Conn., June, 1912.

1. Tr. Am. Clim. Assn., 1903, p. 64.

which, with tubercle bacilli still persistent at time of discharge have been called "arrested," according to the present use of the term, so that for the purposes of comparison with previous reports we have counted together the cases of arrest and apparent cure and called them arrested.

Of the 297 cases so classed, twenty-five, or 8 per cent., have not been traced, and thirty-five patients, or 10 per cent., have died, leaving 237 patients, or 81 per cent., known to be alive and for the most part in excellent health.

In arriving at a diagnosis nearly all patients since 1902 who have not shown tubercle bacilli in the sputa have been tested with tuberculin before being pronounced tuberculous. This has been done to avoid the criticism which could be advanced with some justice that occasionally patients without tuberculosis might have been discharged, thus bettering the reported results of the sanatorium. Each year there are three or four who are sent out as "suspected" cases, but without taint of tuberculosis as ascertained by the test. It might be said, however, that all of these could at least be classed under the frequently heard but erroneous term "pretuberculous;" that is to say, these patients are always debilitated and in a condition to be attacked by disease. The sanatorium care and regimen is therefore a good thing, for it teaches such patients how to care for their physical condition so that they are not so liable to any disease.

In our opinion the administration of the tuberculin test is not to be lightly undertaken. We remember one rather harrowing experience which it may prove of interest to recount.

CASE 206.—Two years before entrance, this patient had a cough for about three months. She afterward began training as a nurse and the chest was examined by chance by one of the visiting physicians, although there were no symptoms referable to the chest at that time. She had dulness over the upper half of the right lung and medium and fine râles all over this side. As there was no sputum for examination, she was given 0.002 gm. tuberculin about two weeks after entrance. This caused a slight reaction, and as the patient seemed all right she was allowed to stay up the next day. The temperature, however, went up a little on that day and the two days following. The patient was again put to bed and was kept there for nearly eight weeks before she could be safely allowed about. A part of this time the temperature varied between 100 and 103 at night, and cough, which had been absent up to this time, became troublesome, the sputa containing many tubercle bacilli. This upset naturally worried us a good deal, but on further investigation it was found that on the two or three days after the test the patient overexerted herself walking, so that the upset was ascribed to this as much as to the tuberculin. After discharge this patient again took up nursing and remained in good condition for several years. She finally died of an acute hemorrhage nine years after discharge.

Since this case we have been more hesitant in applying the test to patients who present signs of persistent active catarrh in the lungs, and one or two instances usually occur each year in which we consider a patient to be tuberculous because of the history and certain suspicious signs in the chest even though no tubercle bacilli are found and no tuberculin is given. The following would be a rather typical case of this sort:

CASE 532.—The father and mother of the patient had died of tuberculosis about one and one-half years before the patient's entrance. The patient had had what was called "grip" with occasional cough. Recently there had been no cough or expectoration. The chest showed marked dulness over the upper half of the right side and at the apex on the left. Breathing was harsh on the right and the voice was bronchophonic. Medium and fine râles were heard in plenty over the dull areas. The throat showed general congestion with a small ulceration on the left; the true vocal cord and both false cords were red and swollen. The patient had been hoarse for a year. At no time was any sputum available for examination. Such a case certainly needed no tuberculin to prove that treatment was necessary, and the administration of a test dose might have had disastrous results.

In obtaining the results nothing new or original has been used in treatment. The trinity of fresh air, good food and rest have been the main reliance. About four years ago an experiment was made with a sleeping-out balcony. The five patients who were on this balcony did so well and were so enthusiastic that other balconies were made, until now every room has a large door through which the bed may be wheeled on to a veranda. All the patients favor sleeping out and if, for any reason, the weather forces them to remain with half the doors closed there is a general complaint of stuffiness and lack of air, even though under such circumstances there is better ventilation than in any ordinary room. We have concluded, therefore, that even though we cannot say in any individual case that the patient is better for sleeping out, still we feel that, all things considered, the condition of patients is so much bettered that the expense of making the balconies has been justified.

In forty-two cases tuberculin has been used therapeutically. For the most part these were not especially favorable cases; in fact, nearly half (nineteen) were considered moderately advanced and there were only four patients who were free from tubercle bacilli in the sputa. Of these four the signs in two extended over more than half of each lung. One of the others, who had a history of hemoptysis, had definite signs in one lung which have persisted to the present. The other patient had a tuberculin reaction and was given treatment because her home environment was poor and it was desired to give her as much resistance as possible. Seven of the forty-two patients have died. Four of these were treated in the first years of our use of tuberculin and would not at present have been chosen for such treatment, since they were evidently fast failing, and showed elevation of temperature and rapid inroads of disease. Another of the seven who have died wore herself out needlessly by too much traveling contrary to advice, and one had a sudden hemoptysis. One patient who had tuberculin treatment has not been traced. This leaves thirty-four of the forty-two cases, or 83 per cent., in good condition. This seems to us a good showing, considering the relatively poor condition of many of the cases, and we therefore favor the use of tuberculin in cases of open tuberculosis without fever and, theoretically at least, we believe that it is indicated in closed cases as a means of conferring something of an active immunity. Before leaving this phase of the subject it would perhaps be of interest to touch on the history of the first patient who received the treatment at the sanatorium and who has done so well for eight years that we have at times felt like giving tuberculin to all patients as a routine.

CASE 243.—This patient was first admitted April 20, 1903. There were well-marked signs all over the left side of the chest and at the top of the right side. The sputa contained many tubercle bacilli. With ordinary sanatorium treatment the cough and expectoration ceased and she was discharged at the end of eight months. Within six months the patient was back again with a renewal of all the old symptoms. With the same treatment she had received before she gained a little in the next five months but without evidence of radical improve-

ment. Finally she was given tuberculin over a period of five months in doses ranging from 0.0005 gm. to 0.6 gm. At first the cough and expectoration increased, but soon the condition began to improve and for more than a month before the patient was discharged the symptoms were entirely absent and the physical signs showed much improvement. After discharge she worked for a time in a bleachery without breaking down; at present she is a waitress in a summer hotel and reports that her health is excellent, eight years after the use of tuberculin.

In considering again the results of treatment in this series of cases, one cannot but be impressed with the after-condition of the arrested cases as compared with that of the improved cases—health being reported good in 81 per cent. of the former and in only 29 per cent. of the latter. The oft-repeated moral is again brought forcibly to mind by these figures, that in order to give patients the best chance for recovery and for subsequent usefulness in life, they should be treated at an early stage while yet the disease may be arrested. We have learned that patients are practically never cured during residence at a sanatorium; they are merely started in the right direction. It is fairest to them, therefore, to begin treatment at a stage when they may be given the best chance to regain health.

In reviewing the work accomplished in the last twenty years, we feel that our attitude has been one of conservatism in regard to the results obtained. When one reflects on the condition of affairs in the treatment of tuberculosis twenty or twenty-five years ago, and recalls the sense of hopelessness that was felt whenever a patient presented himself with symptoms of pulmonary disease, especially among the less favored classes, we feel that we are justified in looking with great satisfaction—even enthusiasm—on the work of twenty years at the sanatorium.

It is often impossible to impress on others by figures alone facts which through long years of experience stand as positive proofs to us of what we wished to obtain. It was never believed or even hoped that sanatorium treatment alone would eradicate tuberculosis; but it did not take long to convince us that it was a great step in the right direction and that infinitely more could be done than heretofore to bring people back to health, even under what had been considered in former years most unfavorable conditions.

In stating our results, it must be remembered, too, that in using the term "arrested" we have applied it to the results obtained in many cases in which at the beginning of treatment the physical signs and symptoms of disease were well marked, and in spite of which condition a successful result was often obtained for a number of years. The surprising part has often been that such patients have remained so long without relapse on resuming the ordinary conditions of life.

To those who have been closely connected with the work, the fact that has been of far greater influence than the mere collection of figures, although these themselves have given us the greatest satisfaction and more than we had dared hope for in former years, are the faces and general aspect of patients who on reunion days at the sanatorium appear to give their tribute of gratitude for help which they have received in former years. The evidence that these persons give, not only of the good done to themselves, but of their influence on others in teaching methods which tend to prevent disease, is the most gratifying part of all our work.

We have no sympathy with the attitude, which happily is now lessened, that because sanatorium treatment has not proved to be a panacea it has therefore failed in its purpose. On the contrary, with greater confidence than ever before, we feel it to be one of the great and important factors to be resorted to in conjunction with every other known method of combating the disease which still holds the highest place in the mortality list of the civilized world.

THE ETIOLOGY OF BERIBERI

CARL LOVELACE, M.D.
PORTO VELHO, BRAZIL

In THE JOURNAL, some time ago, there appeared an editorial comment[1] on the sanitary work incident to the construction of the Madeira-Mamoré Railway, in the states of Amazonas and Matto Grosso, Brazil. I take it, therefore, that a brief description of this work would be deemed of interest to physicians. For this reason, and in order to give a side-light on my subsequent remarks, I venture to prefix my observations on peripheral neuritis in Brazil, with the following:

THE MADEIRA-MAMORÉ RAILWAY

The Madeira-Mamoré Railway is 227 miles long. It extends from the head of navigation on the Madeira River southward and upward to the navigable waters of the Mamoré River—from Porto Velho de Santo Antonio to Guajara-Mirim. Except for the improvements made by the company, both of these formidable names locate mere spots in the Brazilian jungle. The first train over the whole line was run on April 30, 1912.

Porto Velho is situated in south latitude 8° 45′; is 300 feet above sea-level; has a rainfall of 90 inches per year, and a temperature range from 56 F. in the cool June nights to 102 F. in the hot September days. It is on the right bank of the Madeira River, which at this point has an annual rise and fall of 45 feet. The annual volume of water discharged by this river is about the same as that of the Mississippi. Boats drawing 8 feet of water ply on it all the year, and ocean-going vessels of 7,000 tons come to Porto Velho every year during the period of high water, from December to May.

Three previous attempts to build this railroad were unsuccessful, because of the terrible rates of sickness and death among those concerned. Mr. Neville B. Craig[2] has written a most entertaining volume describing one of these melancholy failures.

WORK OF AMERICAN PHYSICIANS

The sanitary branch of this work has from the beginning, in 1907, been under the direction of American physicians employed by the contractors. In 1910, Dr. Oswaldo Cruz, Brazil's foremost sanitarian, visited Porto Velho, sojourned here three weeks, approved the work then being done, and urged the compulsory administration of daily prophylactic doses of quinin to all employees not protected by screened houses. In a non-military organization this has been found impossible to carry out perfectly, but even its partial enforcement has been of untold benefit. Without the powerful influence and personality of Dr. Cruz the liberty-loving Brazilians would have rebelled against this regulation.

In 1911 the number of employees was about 5,000, comprising, approximately, 250 North Americans, 2,000 Brazilians, 1,000 Spaniards, 750 Greeks and 1,000 others, representing practically every country in the world. The

1. Sanitary Work in Brazil: Good Health a Commercial Asset, THE JOURNAL A. M. A., Sept. 24, 1910, p. 1120.
2. Craig, Neville B.: Recollections of an Ill-Fated Expedition.

number of physicians at this time was nineteen, of whom eighteen were Americans. In all, forty physicians have been employed, of whom thirty-six were American, two Brazilian, one Spanish and one English.

The sanitary measures adopted have consisted in the provision of screened houses for all employees of the higher grades; in antimosquito campaigns in and about the permanent camps, that is, camps destined to become towns; in the compulsory, prophylactic administration of quinin to employees; in the regulation of food and water-supply; in the usual measures against the so-called quarantinable diseases; in attention to disposal of garbage and sewage, and, finally, in the prompt hospitalization of all except slight cases of illness.

The nearest city and base of supplies is Manaos, where, for many years, yellow fever has been rampant. On seventeen occasions cases of yellow fever have been brought to Porto Velho by the river boats, and last year a number of employees contracted the disease at the old town of Santo Antonio, 3 miles from Porto Velho. We have been able to prevent the disease from getting a foothold anywhere on our line of work, only three cases having occurred in which the infection did not originate outside of our zone.

Malaria, yellow fever, blackwater fever, bacillary dysentery and beriberi are the chief tropical diseases with which we have to contend. We have had one rather sharp outbreak of typhoid fever, and lobar pneumonia has killed more than 200 of our employees. The hospital consists of six detached wards with a normal capacity of 250 beds, an operating-room, a clinical laboratory, a post-mortem room and the necessary out-buildings. We do autopsies on the bodies of all persons dying in the hospital. The material is only too plentiful. In addition to our employees, we receive a number of patients from among the *seringueros* for hundreds of miles around. From Jan. 1, 1908, to Jan. 1, 1912, there were admitted to the hospital of this company 30,430 patients.

DESCRIPTION OF A FORM OF PERIPHERAL NEURITIS

Among the 30,430 admissions to the hospital of the Madeira-Mamoré Railway between Jan. 1, 1908, and Jan. 1, 1912, the diagnosis of beriberi or of "polyneuritis" or of "multiple neuritis" was made 963 times. The affection is known locally as *polynevritis*, and following the teaching of the celebrated Brazilian physician, da Silva Lima, a goodly portion—in North Brazil, a majority—of the profession affix the word *palustre*. They regard the affection as a multiple peripheral neuritis incident to malarial infection. Oswaldo Cruz himself shared this opinion until his visit to this hospital in the summer of 1910.

Symptoms.—Few diseases present such a variety of clinical aspects. The onset may be sudden, the course swift and tragic. We have a number of charts of intelligent patients, with clear histories, in whom the duration of the disease from its very first symptom up to death by cardiac dilatation occupied less than one week. On the other hand, the onset may be so gradual and the symptoms so poorly defined that the disease is well advanced before the patient seeks relief. Some recover in a few days; others are bedridden for months. Some are waterlogged from the beginning; in others there is little or no edema. In some the affection throughout seems to be entirely cardiac; in others the heart appears to be absolutely unaffected even though the paralysis be extreme. The deep reflexes may be lost as a first manifestation of the disease; quite frequently they are markedly exaggerated not only in the beginning of the disease, but also throughout its course and immediately before its fatal end. They may be exaggerated to-day, and absent a week from to-day.

Sometimes the pain, particularly in the legs, is excruciating; more often the legs feel dead with vague, slight pains, or the "pin-and-needle" sensation. A patient may enter the hospital to-day with no symptoms save the subjective ones of pains in his legs, and in forty-eight hours have become so edematous as to be almost unrecognizable. The pain may be chiefly substernal, or in the thighs, or in the forearms. It may be entirely absent.

Death may come with dyspnea, cyanosis and a feeble, fluttering pulse, while the patient seems yet robust; or it may come as a terminal dysentery or pneumonia after he has been exhausted by many weeks of suffering.

Clinical Classification.—What one may take as the type of our patients presents himself for treatment complaining that his legs are swollen and that his calves are sore and painful. One finds on examination a rapid heart frequently with the pauses equal, and sometimes with a reduplication of the second sound over the pulmonic area; edema of the legs of maximum intensity over the pretibial area; knee-jerks usually exaggerated, but frequently lost, and areas of tenderness on the legs, giving rise to the "stiff" gait, with or without areas of anesthesia and of paresthesia. Fully three-fourths of our cases present these symptoms and these alone. The tachycardia may be slight and may not be noted unless one makes the patient walk about. The arhythmia may be absent. Edema is present at some time in perhaps 90 per cent. of all cases. Pain in the legs, especially the calves, and in the thighs, particularly along their internal and posterior aspects, is also a fairly constant feature.

Patients of this group—and it comprises 75 per cent. of the total—usually recover on being put to bed and given an easily digestible diet, with treatment of any associated malady as malaria or uncinariasis. A few, however, grow progressively worse in spite of any and all treatment.

The severe cases fall into two groups: (1) those in which symptoms, apparently cardiovascular, dominate the situation, and (2) those in which paralysis of various groups of muscles, with pain and tenderness along the nerve trunks, is the characteristic feature. To the former of these two groups belong the acute pernicious cases characterized usually by anasarca and a rapidly developing dyspnea, cyanosis and death.

Any case may at any time develop these pernicious symptoms. Even in these fatal cases the edema may be slight. Sometimes the patient dies suddenly of heart failure after he has so far recovered, apparently, as to have been allowed to sit up.

A striking and cheering feature of a proportion of this group is the rapid recovery, which begins on the institution of rest in bed and good nursing.

Our severe cases of the paralytic or atrophic type fall clinically, also, into two classes: (a) a smaller group with a rapid onset of paraplegia, and (b) a larger group characterized by the slow development of paralysis, by some sensory disturbances and by extreme chronicity. These are the cases which accumulate in our wards and overcrowd them, unless they are invalided away.

A man may walk into the hospital with a mild tertian infection, which yields promptly to quinin. He has experienced nothing beyond the usual phenomena of a malarial attack, save, perhaps, an unwonted feeling of

weakness in his legs. He is surprised to find that, after the subsidence of the fever, his legs become weaker instead of stronger, until in a few days or weeks he is unable to stand. His heart may apparently be unaffected. He has no pain. The blood and urine are negative. Usually, but not always, there is edema of the legs. The knee-jerks are lost; or, without any coexisting malaria, these phenomena may develop within a very few days. The frequent association of malaria with this form of the disease has done much to hang the whole beriberi symptom-complex on the malaria peg in the minds of those whose work has been confined to regions where both affections are rife.

The second group of the severe cases with slight cardiac involvement corresponds exactly to the picture conjured up by the words "multiple peripheral neuritis." If these patients are able to walk the diagnosis may be made at long range. If they are bedridden the most cursory examination will suffice. All the dear old textbook descriptions here come into their own: the "steppage" gait, the lost tendon reflexes, foot-drop, wrist-drop, atrophied muscles, areas of anesthesia, areas of hyperesthesia, areas of paresthesia—all the well-beloved phrases troop gallantly to service and describe with precision the unfortunate patient.

Mortality.—Of 797 patients admitted to the Candelaria Hospital during the years 1910 and 1911, 120 died—a mortality of 15.6 per cent. The mortality varies in a most extraordinary manner. Sometimes it will be not more than 2 or 3 per cent. for months, and then a time will come when half the patients die.

Pathology.—No one feature of the gross pathology as seen at our autopsies is characteristic. Atrophy of the skeletal muscles is sometimes present. In the acute cases it is absent. Dilatation of the right ventricle is almost invariably present. The left ventricle may be dilated. In old cases there is hypertrophy of the right ventricle. Pericardial effusion is fairly constant. The other serous cavities usually contain more or less fluid, and at times the whole cadaver is water logged. The kidneys may be congested, but there is no nephritis. The cardiac cases that have dragged on for some time may show chronic passive congestion of the liver.

Our attempts to estimate duodenal congestion have been unsatisfactory. The paraplegic cases seldom come to autopsy unless a terminal affection—notably bacillary dysentery—sets in. Signs of chronic malarial infection are, in this region, frequently present as a matter of course. No attempts to demonstrate degeneration of the peripheral nerves have been made.

EVIDENCE THAT THIS AFFECTION IS BERIBERI

In writing the foregoing I have sought to describe what I see here. I believe that I have presented a clinical entity which must be c'assified as beriberi. At any rate it constitutes my first proposition, namely, that this affection is beriberi. To the above one might add abundant historical evidence — if libraries occurred in the Brazilian forest. Leopold[3] referred to north Brazil as "the fatherland of the disease" [beriberi]. Bondurant,[3] of Mobile, mentions Brazil first in his list of countries where beriberi prevails. Manson[4] speaks of the "epidemic wave" of the disease which passed over Brazil in the early sixties. Castellani and Chalmers[5] refer to Brazil as a place where beriberi is said to occur. Herzog[6] mentions the occurrence of beriberi on the Atlantic coast of South America and particularly in Brazil. Osler[7] has seen cases of beriberi from Brazil. Magalhães[8] wrote an exhaustive monograph on the cardiac phenomena of cases studied in Rio Janeiro.

RICE NOT A FACTOR

My second proposition is that this affection as it occurs in Brazil is not etiologically related to a diet of polished rice. To posit this negation requires some temerity on the part of a mere clinician, after reading the papers of Fraser and Stanton,[9] and many references to the work of Chamberlain and Vedder,[10] Heiser and others in the Philippines. I do it because I have seen some patients with beriberi whose diet was varied and abundant — who had not eaten a grain of rice for many months before the onset of the disease; a large number of patients with beriberi, who, enjoying a liberal, protein-abounding diet, had eaten it only occasionally throughout their lives, and a great number of sufferers from the disease, in whose diet it could not be considered the staple article. Of the latter class I have seen a goodly number who for months before the onset of the disease had had rice excluded from their diet.

Unlike the Oriental, the South American, by nativity or adoption, is a meat-eater. He eats the European breakfast, but he eats two full meals every day and partakes liberally of meat at both. Beans, which are supposed to have a therapeutic value in the treatment of beriberi in the East, are staple articles of diet throughout North Brazil. They abound on the tables of the poorer classes. *Feijoada,* a compound of bacon, red beans and dried beef, lightly touched with garlic and bathed in its own gravy, is the dish universal among the poor, and not despised by the wealthy. The bean with meat is the staple article of food of the Brazilian peasant. Rice and *farinha* (cassava) and bananas are side dishes. It must be admitted that the Brazilian laborer eats some rice practically every day, and that the incidence of beriberi is perhaps highest in his class; but the same line of reasoning would incriminate polished rice as a causal factor in lobar pneumonia, malaria, uncinariasis and gonorrhea. Among our Brazilian employees lobar pneumonia is twenty times more frequent, relatively, than it is among our American employees.

In December, 1909, alarmed at the increase of beriberi among our employees of all classes, we caused rice to be eliminated from all company messes and removed from all the commissaries. In lieu of rice we furnished macaroni. The staple foodstuffs of the laborers were made to consist of dry biscuit, meat (dried and tinned meat and codfish), beans and macaroni instead of dry biscuit, meat, beans and rice. Conditions along the line of work were such that a large majority of the laborers were deprived of rice. The men who boarded at the company's messes ate no rice at all. The beriberi rate climbed steadily throughout the year 1910, and dropped abruptly at the end of the year exactly as it had done in 1909. In 1910 on a comparatively rice-free diet, there was relatively three times as much beriberi among our employees as there was in 1911, during which year all the messes and all the commissaries of the company served and sold rice freely. The rice has always been the same kind — white, polished rice.

3. Sajous' Cyclopedia of Medicine, i.
4. Manson: Tropical Diseases.
5. Castellani and Chalmers: Manual of Tropical Medicine.
6. Herzog: Osler's Modern Medicine, iii.
7. Osler: Practice of Medicine.
8. Magalhães: O Coracão no Beriberi.
9. Fraser and Stanton; Jour. Trop. Med. and Hyg., Nov. 5, 1911, et seq.
10. Chamberlain and Vedder: Philippine Jour. Sc., November, 1911

One of our American physicians, who did not eat a grain of rice while in Brazil and who purposely refrained from eating it because of its supposed association with beriberi, contracted the disease after about ten months' service here and was invalided home. Three other members of our staff, who lived at headquarters and who ate rice only occasionally, certainly not more than once a week, were invalided home with the diagnosis in both cases of beriberi. One of these men ate at the table of the chief engineer, the other two lived at this hospital. At neither table did rice appear except occasionally. Two other physicians stationed in the camps contracted the disease and were invalided home. Because one of these physicians had malarial parasites in his blood, when he got home, his affection was there diagnosed as "malarial neuritis." In all, six physicians have contracted the disease here — six healthy, young adults who lived on a full protein-rich diet.

The incidence of the disease among physicians has been greater than among any other class except the Brazilian laborers. Does not this fact alone speak volumes?

In 1910, out of a total of 690 admissions to the first-class ward of this hospital, there were twenty-four cases of beriberi. Many of these patients came here and were invalided back to the United States during the time that rice was prohibited. They did not eat a grain of rice. They were clerks, mechanics, camp foremen, time-keepers, etc. Their diet here would not have suffered, in comparison, as to quality, quantity and variety, with the diet of persons similarly employed anywhere in the United States. Fresh meat, onions, potatoes and an abundant supply of the best American tinned meats, fruits and vegetables were supplied in lavish profusion, in addition to the bacon and beans which have belted the globe with steel rails. Among the men from whom these cases were drawn (and no account is taken of a number of contract-expired men, who left of their own accord when the disease first manifested itself) the food-supply was above criticism from any standpoint.

TIME INCIDENCE

If beriberi were due to polished rice, *per se*, one would expect its occurrence to be fairly uniform throughout the year, and from year to year, in a population that eats the same kind of rice in apparently the same quantities all the time. Such is not the case. Of 565 patients admitted to the Candelaria Hospital in 1910, 114 were admitted during the first six months, and 451 during the last six months of the year. In 1910, 565 were admitted; in 1911, with a force of employees 25 per cent. greater and the Brazilian contingent relatively much greater, 232 cases were admitted. Practically, we, as well as the laity, recognize the period from July to December as being the beriberi season. This was the case in 1908, 1909, 1910, and from present indications, it will be the case in 1912. The year 1911 was an exception, the admissions for beriberi being fairly evenly distributed over the twelve months.

PLACE INCIDENCE

The constant shifting of laborers from camp to camp makes it well-nigh impossible to present figures of value as to relative admission rates for beriberi from the various camps. That certain camps yield a much higher percentage of beriberi patients than others is, however, firmly impressed on the minds of all who have, in any capacity, managed the labor on this work. In the fall of 1910 more than three-fourths of all the West Indian Negroes in one of our camps (Camp 16) contracted the disease. The same camp furnished us beriberi patients of all nationalities, and of all grades of employment so long as it was active. In the same year, of four West Indian Negroes living in a palm shack set back from the right of way in the woods, near Camp 22, two died of beriberi, a third was invalided to Manaos and the fourth with the "rudimentary" type of the disease was lost sight of. No other cases of beriberi occurred in any of the other 200 or so laborers strung along the right of way for a distance of several kilometers. The only thing in any way peculiar about this hut was that it was set back in the woods instead of being out in the open, as were the others. In Porto Velho, in 1910, in a period of four months, of three men in succession employed as job printers in a certain house, two died of the disease and a third was invalided to Manaos. In a period of five months in 1909-1910, three men employed as night watchmen in this hospital died of beriberi, and a fourth was invalided home with the same diagnosis. A considerable number of our orderlies were attacked, one of our cooks, two of our nurses and, as stated, two of our hospital physicians.

The rate has been very high among the crews of the company tugs that ply between Porto Velho and the mouth of the Madeira River. In 1910, on two occasions, one of these tugs was put out of commission because of the death or disability from beriberi of her officers, especially her pilots and engineers. The officers living "first-class" have had the disease at least as often, relatively, as the men. The captain of one of the company's larger passenger carrying steamers was invalided home last year with beriberi. The universal complaint of the first-class passengers on this steamer is that they get meat served in too many ways, with too much grease. Fresh beef, dried beef, fish, potatoes, onions, bread made from American flour, beans and rice, with tinned milk, butter and fruits form the bill-of-fare on all these boats.

I have seen cases of beriberi in robust people who have never had malaria or hookworms. I have seen it in nearly all races and nationalities. It has occurred here among all grades of employees. It is, I think, more frequent among those whose resistance has been lowered by other diseases or by the abuse of alcohol. Children usually escape and women are not attacked as often as men. As most of our employees are young men, I cannot speak positively of the age incidence.

CONCLUSIONS

1. A fatal form of peripheral neuritis occurs among residents of the Madeira Valley and among the employees of the Madeira-Mamoré Railway. This neuritis must be classified as beriberi, or as a member of an as yet hypothetical beriberi group.

2. This disease bears no intimate relation to the consumption of rice, polished or unpolished, as a staple article of diet.

3. This disease is not due to the absence of protein in the diet of those whom it attacks.

I desire to make acknowledgment to Dr. E. J. Whitaker, whose assistance in the preparation of this paper has been most valuable.

Candelaria Hospital.

Sleeping Out.—There are two classes of people who should sleep in the fresh air in all seasons—those who have tuberculosis and those who do not want to get it.—E. Cummings in *Jour. Outdoor Life.*

A FURTHER STUDY OF THE END-RESULTS OF THE CONSERVED OVARY*

JOHN OSBORN POLAK, M.Sc., M.D.
BROOKLYN

In 1909, I presented before this Section a report based on a study of the records of 300 cases occurring in my personal services, in which resection or conservation of an ovary had been done. Since that time a large number of secondary operations have been necessary for the relief of symptoms caused by the retained or the resected ovary. These explorations have given me a wider insight into the living pathology of the ovary or the part of the ovary which was retained in the effort at conservation.

While I am still convinced that the importance of the ovary to the woman cannot be overestimated (not only is it the primary and all important organ in the reproductive cycle, but it regulates and controls the perfect attainment of development, growth and function in the individual woman, and its retention is essential to sex perpetuation), yet I must conclude from the study of the end-results of resection and conservation that frequently, owing to a defective appreciation of the living pathology of the ovary at the time of the primary operation and to our inability to estimate the effect which change of position and suture have on the retained ovarian structure, our attempts at conservation are often defeated.

In this study I shall endeavor to differentiate between and draw conclusions from the end-results of the resected versus the conserved ovary. It is surprising that so little clinical data of value have been contributed to the literature on resection and conservation during the past few years, for with the exception of the excellent analysis of the end-results, collated by Clark and Norris, and the contributions of Peterson, Reynolds, Dickinson and myself, there is a dearth of new information. On the other hand, much has been done in establishing the position and importance of the ovarian secretion. Frank and Chipman have contributed excellent papers on this subject, from which I shall take the privilege of quoting. The parenchyma cells of the ovary secrete a substance or substances which react on the general body metabolism, and control especially the nutrition, growth and activity of the uterus. "This secretion is present at all times in greater or less quantity, but it is produced in greater abundance at recurrent periods, when it brings about those conditions of growth and hyperemia which characterize the proestrous or menstrual process. After ovulation, which occurs during the estrous, the secretory cells of the ovary show still greater activity and cells of the ruptured graafian follicle become converted, largely by a process of simple hypertrophy, into luteal cells of the corpus luteum."

Chipman believes that the added secretion of these luteal cells, an increment of quality, of quantity, or of both, raises the nutrition of the uterus which leads to those decidual changes in the uterine mucosa which insure the engrafting of a fertilized ovum. When such engrafting occurs, this secretion maintains the nutrition and growth of the placenta until the latter reaches its maturity. The decadent and fibrotic changes which the placenta undergoes during the latter months of pregnancy are coincident with the retrogression and disappearance of the luteal cells.

The ovary, while maintaining a perpetual secretion, undergoes a series of cyclical changes which increase or modify this ordinary secretion, and with these, the changes in the uterus are correlated. While the exact nature of this secretion is not known, it is definite that the loss of the ovary means the loss of sex influence to the individual, and produces grave disturbance in the general metabolism. The earlier in life the loss of the ovarian secretion occurs, the greater is the calamity, though clinical observation shows that the severity of the nervous phenomena differs in different individuals, as, for instance, the nervous symptoms are less subsequent to operation and the general health of the woman better when a hysterectomy and double oöphorectomy have been performed for suppurative conditions in the pelvis than when a total ablation has been made for fibromyomas. Again, it must be admitted that an ovary conserved for the ovarian secretion, if unhealthy, will leave the patient in a worse state mentally, nervously and physically than if total extirpation had been made.

In regard to the types of ovary which can be conserved, my experience is in accord with that of Reynolds, that a moderately enlarged ovary, the seat of multiple follicular disease, may be reduced to the normal size, placed in a proper position in the pelvis, and retained with considerable hope that the dysmenorrhea and catamenial depression will be greatly improved; also, that an ovary that has been in bad company may be dug out of a capsule of adhesion, the original focus of infection having been removed, and may go through such reparative changes as to become a useful organ. An enlarged ovary is not necessarily a diseased one, for the size of the ovary is affected by its position. A continuance in a bad position leads to changes in its tunic which favor the production of follicular change and retention-cyst formation.

The natural and proper conservation of the ovary consists in leaving it alone, and in placing it in such a position in the pelvis without twisting the ovarian ligament that there is no obstruction to its afferent or efferent circulation. An ovary should never be conserved and then allowed to drop back into the pelvis in a dependent position. When there is interference with the efferent circulation, changes in the ovarian structure rapidly follow, the organ swells from passive congestion, the stroma increases, the tunica thickens, developing follicles become imprisoned, the amount of intrafollicular fluid is rapidly increased and retention-cysts form, often growing with great speed. I have already reported a case of cyst formation within six days of the primary operation, due to a twist in the utero-ovarian ligament which interfered with the efferent circulation.

The distinction between conservation and resection is not properly understood by the profession. Excision of a portion of diseased ovary is conservative but not conservation, and the prognosis as to the final outcome of the conserved versus the resected ovary differs widely. Conservation implies that the ovary is relatively normal, while resection deals with an organ more or less diseased.

The ovary which can be resected with a fair degree of success is the ovary with a large monocyst on its surface, the small dermoid, or the fibroid, from which we are able by careful dissection to retain a sufficient quantity of healthy ovarian structure to make a functionating ovary. It has been proved that the ovarian ligament which hypertrophies as a consequence of cystic changes frequently contains active parenchyma tissue, and that the ovary possesses a considerable capacity for regenera-

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

tion of tissue after its partial removal, if its circulation is not interfered with.

The influence of position on the conserved or resected ovary is a subject which has not had sufficient consideration from operators. My own experience has taught me that when anything interferes with the efferent circulation of the retained portion of ovarian tissue or the conserved ovary whether it be the position in which the ovary lies, as when it is dependent on the misplacement of the ovarian suture, or because of a misplacement of the uterus, which carries the ovary down with it, or when a salpingectomy has been made without due regard to the utero-ovarian anastomosis, the ovary becomes heavier and tends to fall into the culdesac and to change in its size rapidly.

As the surgeon becomes better acquainted with ovarian pathology and the necessity of the ovary being in proper position, fewer and fewer ovaries are removed. Our early mistake was not to recognize that multiple cystic ovaries were the result of interference with the efferent circulation and thickening of the tunic, both of which were due to the dependency of the organ occasioned by hyperplasia, etc. There is probably no part of surgery in which long experience and study of the living pathology is so important as in the decision of what shall be done with a particular ovary which is enlarged to two or three times its normal size.

To ascertain the end-results of the conserved versus the resected ovary, I have selected and tabulated from the records of my clinic since May 1, 1909, 229 cases in which some conservative procedure on the ovary has been practiced. There has been no primary mortality.

In sixty of the women operated on it was possible to retain both ovaries after freeing them from the associated adhesion produced by their infected or diseased neighbors, the uterus and tubes. In each of 102 cases, one ovary was conserved while extensive resection was done in but sixty-seven cases. No attempt was made to save pus ovaries. Enlarged, adherent, edematous, prolapsed and multiple cystic ovaries of moderate size were retained and tacked up in proper position in the pelvis without any attempt being made to diminish their bulk, except by the puncture of small cyst formations on their surface. The results have on the whole been gratifying, for out of twenty-four secondary operations in this series only three necessitated the extirpation of the conserved ovary, as against twenty-one ablations of the previously resected ovary.

I have been able to follow and keep accurate records of 181 patients out of the 229 operated on, and over 150 have been examined at monthly intervals, for periods varying from three years to two months, thus allowing us to make accurate notes and drawings of the exact pelvic conditions.

In this series there were twenty-eight resections of the ovarian structure from large monolocular cysts whose cavities contained from 1 to 10 pints of fluid, in which it was practicable to save sufficient ovarian tissue to construct a serviceable ovary about 2 by 5 cm. in size. Observation has shown that such an ovary during the first four weeks following operation undergoes a primary enlargement, sometimes attaining a size two or three times that of the portion conserved. It then slowly begins to shrink, to lose its tenderness and to perform its functions naturally. At the end of three months, on physical examination, the involution seems complete. None of these women have returned for reoperation. Two are now pregnant, and all have menstruated regularly since the operation. In three instances the type of the period is changed in time and duration and the quantity of blood lost each month has gradually diminished. None has shown any of the nervous phenomena of the menopause. Twenty-one have been examined in the past three months and their records show that seventeen have pelves free from exudate. The ovary is of normal size, in high position, palpable and not tender. Painless enlargement was present in the remaining four. All are at present enjoying good health.

An analysis of the twenty-four cases of this series coming to secondary operation, in which we were able to study the living pathology of the conserved or resected ovary in the pelvis and after its removal, has given us some helpful hints as to what to do next time.

The abdominal findings have been more or less consistent. The conserved or resected ovary has presented further cystic changes which have involved the entire structure and have always been attended by a low type of peritoneal inflammation, producing thin, diffuse adhesions most difficult to handle. This condition was noted in eighteen cases in which the left ovary had been retained, while only six women who had had the right conserved or resected have come to a secondary exploration. Thin-walled cysts of the size of an orange had formed on the resected ovary in four patients. In these the adhesions were particularly dense and extensive. It was evident that the sigmoid and omentum had promptly become attached to the suture line. A gradually developing amenorrhea or a persistent metrorrhagia was present in all of these cases.

These observations have suggested the following conclusions:

1. Only healthy ovaries should be conserved.
2. The right ovary when retained is less prone to subsequent inflammatory changes than the left.
3. All retained ovaries or portions of ovaries should be placed in such a position in the pelvis that their circulation is uninterfered with.
4. Resection gives the best results when its application is limited to large monocysts, retention-cysts, fibroids or dermoids.
5. The multiple cystic ovary should either be left alone or ablated. Resection is not permissible.
6. When a resection is made it should be extensive, excising the entire diseased area. The suture should only approximate the wound edges, not constrict them. The retained portion should be tacked up in the pelvis to maintain an equal circulation, and the suture line should be always covered with a reflexion of the peritoneum.

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ABSTRACT OF DISCUSSION

DR. LE ROY BROUN, New York: In deciding during an operation what course should be pursued, I am largely influenced by the age of the patient, the primary thought being, however, to have the pelvis in such a condition that secondary operations will not be invited by subsequent pathologic changes. I have had no experience in resecting ovaries other than in a few instances when, on account of the youth of the patient, it was imperative that as much as possible of the secretive surface of the gland should be preserved. These were instances in which a corpus luteum cyst had become pathologic in size. On the whole, it has never been my custom to meddle with ovaries with small multiple cystic follicles. For such conditions are evidence of disturbed circulation in the ovarian tissue and should be treated not by resection and leaving the ovary in the same position as before, but by lifting and retaining the ovary in a plane more nearly approaching the normal.

In the presence of adhesions, better results are obtained by using a sharp dissector rather than the fingers.

Where it is necessary to remove a tube, I hesitate greatly to leave the ovary, and rarely do so when the other ovary is unquestionable, except at the request of the patient, or in instances of young women. When the woman is at or near the menopause, or when the other ovary and tube are healthy, I believe it is to the interests of the patient to remove the ovary, together with the affected tube. My reason for this belief is that no matter what method we may use for anchoring the conserved ovary after its accompanying tube has been removed, the disturbance in the venous return will, at times, be sufficient to set up pathologic changes in the conserved ovary, sufficient to necessitate a second operation, which will at all times be more serious than the original operative procedure, on account of the adhesions developing in the wake of the circulatory disturbance.

In such conditions the after-health of the patient is far better when the ovaries are removed at the same time than when we conserve them in whole or in part. In instances of such conservation there has been, as a rule, a long period of tender ovaries, treatment and mental unrest. In instances of hysterectomy for fibroids, the nervous disturbance of the menopause is lessened when the ovaries and tubes can be conserved, and I believe in general it is of advantage to the patient to do this. In these instances, however, I have been forced to operate a second time on four patients for developed cysts in one of the retained ovaries. My practice is at present to conserve the ovaries and tubes in such instances if possible when the patient is young, but to remove them when the patient is at or near the menopause.

DR. W. B. DORSETT, St. Louis: I have had some very startling experiences following resections of the ovary in cases of dysmenorrhea, the conditions being entirely relieved by resection. I do not mean to say that all conditions of dysmenorrhea can be relieved by resection of the ovary. There is much in the technic that should be closely observed. The resection should imply that a portion of the ovary is removed, not simply the opening of a cyst with the needle and dissecting it out. In some cases it is almost impossible to scrape out the cyst, and therefore a large portion of the ovary should be removed. In doing so a wedge-shaped piece should be cut down to the very edge of the ovary so that all cysts can be removed by the two incisions. Regarding the covering over by the peritoneum mentioned by Dr. Polak, there are two classes of ovaries that give me trouble: those with very thick and those with very thin coverings. In both there is tearing out when the needle is put in. It is necessary to carry the needle down to the very bottom of the deepest portion in which the ovary has been incised, that is, when the wedge-shaped piece is removed. I agree with Dr. Polak on the advantage of anchoring the ovary after operation. One-half of the results obtained are due to the suspension of the ovary rather than to the resection.

DR. H. J. BOLDT, New York: In my experience the ordinary cystic degenerations of the ovary are absolutely different. They gave no symptoms and were left alone. Taking out a wedge-shaped piece seemed useless. In a large ovary it may be done, not for the purpose of removing part of the ovarian structure, but for the purpose of decreasing the size of the ovary or of diminishing its weight. It is possible that we may at times be compelled to do a secondary operation because of a cyst forming in that ovary. Yet it is not desirable invariably to remove ovaries that seem to be healthy. I should always retain the ovary, no matter what the condition causing the abdominal section, so long as it was macroscopically in good condition. Particularly is this the case in ovarian tumors. With apparently no more functionating stroma, I have been able by shelling out the tumor to retain the ovary. In one case in which it was necessary to remove the complete ovarian tissue on one side the other ovary had joined in the tumor. It would have been most disastrous for the future of that patient to have taken out the ovary. I was able to preserve sufficient of the ovarian stroma to continue to functionate; the patient is now married, and I have no doubt but that a satisfactory result will ensue. Therefore, whenever an ovary is sufficiently healthy to retain its function I retain it.

DR. F. J. TAUSSIG, St. Louis: My experience is based on three secondary operations but they have all been done on ovaries a portion of which had been left on the left side, and I have found that the cyst wall was always closely adherent between the ovary and the sigmoid or rectum. The question arises, What is the cause of this increased frequency on the left side? When the two ovaries are equally good and there is no material reason for choosing one in preference to the other, of course, we would as a result of this evidence prefer leaving the right ovary and removing the left entirely. But when the right ovary has to be removed and we are compelled, therefore, in order to have any ovarian tissue left, to utilize the left ovary, we ought to see how we can vary our technic to diminish the number of cystic conditions following. It occurs to me that the closeness of the intestine may be the main feature in this matter, and that if we draw the intestine over toward the right side by a suture, it might reduce the frequency of cyst formation.

DR. T. J. WATKINS, Chicago: I agree with Dr. Polak on the indications for the work. His method of covering the line of sutures with the peritoneum would seem to me to be original with him, and I should like to ask if he has been doing that for a long time. There is a possible danger of the development of follicular cysts from not leaving the ovary free. It has the advantage, however, of covering over the raw surface. I have been going a little further than Dr. Polak. I have occasionally resected small abscesses in the ovaries in young women, preferring to run the risk of secondary trouble to producing an early menopause. As yet I have had no unfavorable results so far as we know. We have operated a second time in some ovaries of much the same class as mentioned by Dr. Polak, cases of perioöphoritis in which the ovaries became cystic after operation. In resecting these ovaries, the greatest danger has appeared to be from the formation of adhesions. Lately if both ovaries have been affected, I have resected only one. In resecting ovaries of late I have left less tissue, leaving only a comparatively small part of the ovary that is attached at the hilum, but in none of these cases has the menopause been produced. What should be done in cases of so-called sclerocystic ovaries is still a problem. The pathologist has not yet determined whether they are really pathologic. We have no idea what produces them and we have very little observation as to what becomes of them when they are left. We should keep such patients who have not been operated on under observation for the purpose of determining what really becomes of these so-called sclerocystic ovaries.

DR. H. P. NEWMAN, San Diego, Cal.: I would have supposed that the removal of ovaries for menstrual pain—"ovarian dysmenorrhea," so-called—and neurasthenic conditions in general, was no longer a debatable question in an organization like this. Ovarian surgery has passed the experimental stage and no longer justifies the removal of the organs in young women for disturbed function, pain and nervous symptoms. In view of the deplorable situation in which a woman in early menstrual life is placed on the sudden and complete cessation of this function, we are reluctant to do the necessary radical work even in cases of malignancy, uncontrollable hemorrhage and those pathologic conditions for which there is as yet no other relief. And as for cystic and sclerotic conditions we no longer extirpate for them. About the hilum sufficient ovarian structure for healthy functioning will be found, and by plastic work we may excise the degenerated tissue and retain enough normal to insure ovulation as well as menstruation, so essential to the well-being of the young woman. We may look, perhaps, in the direction indicated by the reports of the newest developments in organotherapy and ovarian transplantation for suggestions of relief for those unfortunates who are now paying the price of radical operations, necessary or not, formerly done, in whom there is no possibility of return to normal and who appeal to us for assistance in the effort of the nervous system toward compensation.

DR. W. B. DORSETT, St. Louis: I hope Dr. Newman did not understand my position to be that of removing ovaries for dysmenorrhea. I said I had had remarkable results in the treatment of dysmenorrhea by resecting the ovary. I did not report, and do not know that anybody has reported, removal of the ovary for the treatment of dysmenorrhea.

DR. J. O. POLAK, Brooklyn: Dr. Taussig in speaking of my method of resection implied that his conception was that there was no peritoneum to the ovary. I do not cover my wound in the ovary with the peritoneum of the ovary. I try to use the back of the broad ligament so that I turn the scar into the broad ligament. It came to my notice a year and a half ago in reoperating on a woman in whom I had done a resection. She came back to me because of adhesion of the sigmoid to the suture line of the right ovary which was down in the culdesac. I separated that adhesion and made a further resection as it was the only ovary the patient had and she was young. I partially turned the ovary on itself burying the suture line in the broad ligament, with satisfactory result. I have continued that procedure. The one point which I do wish to bring out is that true conservation is leaving the ovary alone, and that the best result I have had in resection has been in the resection of large ovarian cysts in which apparently there is no ovarian structure, and yet in which by careful resection it has been possible to retain a functionating and menstruating woman. Two of the patients so treated are now pregnant. This is a small percentage of the whole number of cases but is sufficient to show that the ovary even after marked resection is capable of producing an ovum.

HEREDITY IN NERVOUS DISEASE AND ITS SOCIAL BEARINGS*

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My theme is old; yet every topic into which heredity enters can now, in view of the recent advances in this study, be viewed in a new light. So possibly I may be able to present ideas in a new way.

Mental abnormality may be divided into two sorts: lack of development and weakness. Let us consider the origin of each sort. The development of an individual is a complex of processes which work individually to the production of specific organs, and collectively to the development of the individual as a whole. Modern studies in heredity indicate that, typically, each part develops to a certain extent independently of every other, at least in the early stages. Later the secretions of thyroid and thymus, testis and ovary, and doubtless other organs, exert a general or a specific influence on development. Finally, insufficient nutrition of the embryo or the presence of certain poisons may exert a wide-spread inhibiting effect on developmental processes. Even starvation exerts a somewhat selective influence since all organs are not equally retarded; and there is reason for concluding that malnutrition and poisons have a different effect on different persons, retarding those in whom the internal impulses to development are weakest. Consequently, it is difficult to draw inferences as to the influence of alcohol on the development of man from its influence on the development of guinea-pigs. It is stated that when guinea-pigs and rabbits are subjected to alcohol their young develop imperfectly. There are many detailed family histories in which both parents have been alcoholic sots during the reproductive period, and yet they have produced children without spina bifida, harelip, cyclopia or other marked teratologic conditions.

Failure of mental development may, on the classification adopted, be regarded as of four sorts:

1. Intrinsic and general, producing idiots and cretins.
2. Intrinsic and specific, producing the feeble-minded.
3. Extrinsic and general, resulting (it is alleged) in abortions, miscarriages, etc.
4. Extrinsic and specific, causing (perhaps) some cases of harelip, eurencephalism and some other defects.

Of the four classes, the second is the commonest. From my point of view feeble-mindedness is the failure of development of specific mental traits, the determiners for which are not present in and have never been acquired by the germ-plasm. The defects are a direct inheritance from our remote ape-like ancestors in which the trait had not yet been acquired. The feeble-minded have gained most human traits, but not all the mental ones.

The group of the mentally weak includes those persons who, under the influence of stress, break down mentally. The stress reveals the hidden weakness but does not cause it. Studies of the families of epileptics, dementia praecoxes and manic-depressives reveal the fact that they belong to strains with mental weakness. If we inquire whence these strains arose, no final answer can be given; but the suggestion may be made. Every person has a weakest part; we are not like the "one-hoss shay." And there is evidence that there are human strains that are not resistant to attacks on the respiratory tract; others whose weakness is in the circulatory system; others whose alimentary tract is the first to give way; and others whose nervous mechanism cannot stand great stress. And those persons who go insane belong, for the most part, to this last set.

The origin of these insane families may well go back to their animal ancestors, for animals are characterized by precisely these same strains. Or we may say that the mentally weak include those mental adjustments which have not kept pace with the increasing demands of our civilization. Neural weakness in man is probably a direct transmission from neural weakness in lower animals.

From this point of view, the origin of a feeble-minded child, which seems so like the visitation of an offended God, is merely the necessary cropping out of inherited animal traits, and the origin of a functionally insane person is, within limits, determined by a fortuitous combination of weak determiners.

Leaving for a moment the matter of the origin of neuropathic strains, let us consider their relation to society. Society is an organization of a gregarious species for development of common interests through cooperation and division of labor. Social progress implies mutual understanding, ability to cooperate and to play one's part well, while regarding the good of others. Society is built on human behavior, and the behavior of an individual at any time is his reaction to the stimuli that fall on him. The reaction is determined not only by the stimulus but also by the individual's make-up, both that part which comes through heredity, and that which comes through training (which, in turn, is largely influenced by heredity). Society has decided that certain kinds of behavior — reactions — are, on the whole, good for the development of society, and that certain others are bad. The inability to learn to count, to read, to write, to distinguish colors, the lack of ambition, of foresight, of industry, of inhibition to drink, of sex control and control over other emotions, such as anger, fear, hatred, suspicion and revenge, the strong desire to take the property of others, to realize excitement by conflagrations or by false tales, the tendency to seclusiveness, to shyness, to conceit, to periods of depression, to hyperexcitation and exaltation, to expansive ideas, to loss of memory, to loss of orientation, to cruel treatment of animals and children — all of these reactions are "inheritable" and are bad for society,

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which has labeled them "bad behavior." The persons who behave this way are incompatible with a safe and progressive social organization, and they should, in the worst cases, be segregated to protect society, and above all that they may not reproduce their kind.

Society's method of dealing with those who exhibit antisocial behavior is often inadequate. The theory of treatment is: (1) to avenge the misdemeanor; (2) to give pain, so as to supply a deterrent to the individual; and (3) to set an example of consequences which shall act as a deterrent to others.

The first motive is clearly illogical, as the persons who act antisocially cannot properly be held responsible in this behavior in the sense of deserving pain. The occurrence of recidivists who form a large part of all "criminals" indicates the inadequacy of the second aim. As for the third aim, if the punishment of the individual is of little effect on him, it is clear that it must be of much less effect on another. As a matter of fact, there is little evidence that punishment has any effect except in minor antisocial behavior. Since punishment is inadequate in the case of the grosser breaches of conduct the whole system should be abandoned and replaced by lifelong restraint like that afforded the imbecile and permanently insane.

Finally, since most if not all kinds of nervous disease have the hereditary element, it is clearly desirable that such disease should not be perpetuated by unfit matings such as between two strains containing nervous weakness. In order that such marriages may not occur, the fact of neural weakness in a family strain should be known to one contemplating marriage into that strain. It is the duty of a physician in the exercise of his broad function as eugenist, to warn young people who are contemplating a choice that is clearly unfit. The rule of secrecy in family affairs enjoined on physicians should not apply to prevent a physician from speaking in such cases, even as the laws in some states are requiring him to report venereal disease. Any rule of secrecy which acts against the progress of society, and especially against fitness for marriage is a grossly antisocial, immoral law, and should be repealed. Not infrequently the student of the heredity of a characteristic has to ask the physician concerning the occurrence of a characteristic in a given person, A. B., whom the student knows only as the name appears in some pedigree with which he is working; occasionally the physician, usually a young man, declines to assist on the ground that he is not at liberty to give the desired information. Knowledge that might well lead to conclusions of great import to humanity is withheld in the blind following of a rule whose main motive is praiseworthy, but whose application is too broad. Inheritable traits are not personal property. They come to the individual from down the ages out of the society of the past; they will be disseminated, if the person or his fraternity have children, into the society of the future. What right has the momentary possessor of the trait to claim it as his private and personal affair? A knowledge of his traits belongs to society; is it not wrong for the medical profession to maintain these false ideals of the private nature of inheritable traits?

If the defense is that physicians must protect those by whom they are paid even at the expense of society, then the sooner the state takes over the whole matter of private as well as public sanitation, the better. A relation that was satisfactory when disease was regarded as a personal and private matter is inadequate now that health and disease are properly regarded as public and social affairs. I do not see any logical outcome of the development of medical science but this: that the health of the individual shall be regarded as one of the principal interests of the state, and that eugenics, as determining liability for disease or for imperfect development, shall be recognized as one of the principal divisions of state sanitation.

ABSTRACT OF DISCUSSION

DR. L. PIERCE CLARK, New York: Many, if not most neurologists, make a special point of advising their patients regarding the matters laid down in Dr. Davenport's paper. The whole subject will take an immense jump forward in practical impetus when we can predict the future outcome of different kinds of matings. The matter is now largely a case of spilled milk or locking the barn after the horse is stolen. To control and manage all medicine is a questionable procedure for any class of society, certainly an extra hazardous venture as our society is constituted to-day. The crying need of the moment regarding sterilization is more definite information and not more legislation. The latter is now far outrunning the former. In Connecticut they have not made use of their anti-marriage law of the unfit at all as the people are not back of it. I understand that a reactionary tendency is in progress in Indiana also. The main practical issue to-day is to collect and study facts regarding sterilization of the unfit, teach the people the importance of application of these facts and follow a well-thought-out plan of legislation. After all, the prophylaxis of preventing marriage of the unfit, rather than sterilization, will be the truly rational approach to the problem.

DR. A. C. BRUSH, Brooklyn: We must consider this question seriously before we push any measures to the point of legislative enactment. To start a public campaign on the matter of the new series of transmission of hereditary tendencies too abruptly would be unwise. According to one pronouncement of the mendelian law, if a man with psychopathic tendencies marries a healthy woman and four children are born, two will be psychopathic and two normal. Without knowing whether or not a young person will develop psychopathic tendencies, have we a right to interfere with the marriage; or how will we select those with psychopathic tendencies? I wish Dr. Davenport would consider that in summing up. I am not, however, advocating the theory of striking at the whole family; that would be an injustice.

DR. WOODS HUTCHINSON, New York: The public mind is becoming quite receptive to these ideas, even though at first sight as repulsive as that of sterilization. The strongest expressions of objection to the new legislation and doubts cast on the wisdom of it come from the medical profession rather than the laity. As Dr. Davenport says, the more carefully these defectives are studied, the more the hereditary element comes out in them. At the training school at Vineland, N. J., they have clearly demonstrated that from the union of a feeble-minded man and a feeble-minded woman never yet was born a normal child, and in the various matings between sound and feeble-minded persons the defects appear in offspring almost in mendelian proportions. In investigating criminals born in Indiana I have shown that nearly 50 per cent. of them are traceable to 150 families. The problem is one of great importance, and its solution is feasible and practical. It involves the sterilization of only about 3 per cent. of the community, and within two generations we should have at least diminished by three-quarters our criminals, prostitutes, insane, epileptics, feeble-minded and inebriates. I spent a week in a reformatory where sterilization has been carried out to the fullest degree; out of 700 sterilizations on confirmed criminals, over 600 were at the request of the men involved. They are willing to protect themselves and society against this possibility, if society will approach them in a kindly, broad, liberal and sympathetic spirit. If we could make our influence felt in the courts and study the individual history of these criminals, we could accomplish something. I asked a famous detective if he knew anything of the history of the McNamara brothers, the

dynamiters. The general statement had been made that these men were ordinary members of society who had gradually let the lust of blood and hatred of capital grow on them until they committed crime. "Yes," he said, "their father was in jail twice, once for assault for attempted murder, and once for incest with his own feeble-minded child, sister of the two criminals, and there was another feeble-minded child in the family." And yet that matter was threshed out for months in the press and the courts without any question as to the mental responsibility of those two men. I believe that what we as physicians have to say on this subject, based on a rational, broad, humane regard for the unfortunate, should have weight. Of course, we know that 60 to 75 per cent. of the fallen women are definitely mentally defective. We should look on those people as our unfortunate brothers and sisters who fail to develop, who need our care, sympathy and protection and not our hatred and punishment. Then, if we rise to our possibilities, we shall reform society, wipe out crime and reform even our courts and the legal profession.

DR. WILLIAM W. GRAVES, St. Louis: I would call attention to the fact that in clinical medicine some attention is invariably paid to that part of the study called family history; but up to the present, so far as I know, the data thus derived have been based largely on hearsay testimony. Family pride and foregetfulness and, in some, untruthfulness render the data thus secured inaccurate. As much as I would applaud the good accomplished by field workers in the collection of data bearing on family histories, yet the study of the individuals of families in a comparative clinical way will yield just as important and even more definite information bearing on those factors which make for a bad heredity. In our studies of the problems of heredity it is not sufficient to depend on hearsay testimony; we must apply, in addition, comparative clinical methods to these problems. We know of no standard of humanity except that which is established by the parents. It is obviously unfair to compare the members of one family with those of another because the determiners of the ascendents represented in the parents are different in each family. If we will utilize in our studies of heredity that standard which is established by each pair of parents and study the parents and the progeny in a comparative clinical way, we shall get back to first principles. It is recognized everywhere that well-mated and healthy parents, as a rule, produce healthy progeny, which compare favorably one with the other and each in turn with the parents; so that, utilizing the parents as standards and approaching the problems of heredity in a comparative clinical way, in addition to estimating hearsay testimony at its full worth, we shall not only be able to determine the effects of bad mating but also to determine those factors of disease which make for bad heredity.

I was pleased to hear Dr. Davenport say that recent studies have shown that alcohol has not played that important rôle in the production of bad heredity which we have heretofore believed it did. My observations are wholly in accord with this view. There is a disease, however, which has as yet failed to receive full consideration as a cause of bad heredity. While we have recognized that syphilis may be transmitted to the offspring, we have recognized as "tainted" only those who show Hutchinson's teeth, interstitial keratitis, deafness without otitis, bone, joint, skin and mucous membrane affections; the other progeny of syphilitic parents who have not shown these signs we have considered as healthy individuals. Comparative clinical studies of the progeny of syphilitics will show how false are our present conceptions in regard to the effects of this disease. Such studies generally applied and using the parents as standards will not only enable us to determine the effects of good and bad mating, but will also enable us to determine the diseases which render a good heredity bad and a bad heredity worse.

DR. E. E. SOUTHARD, Cambridge, Mass.: Whatever may be said against the field workers and their lack of intimate medical knowledge or anthropologic knowledge, which are not really always necessary, there seems as yet to be no instance of a normal child born from feeble-minded parents. The same cannot be said, I think, of insane parentage, but there are few data in this direction. We are apt to synthesize the conditions of degeneracy, insanity, epilepsy, inebriety and the like, including crime and pauperism, under the same category, without due attention to the different parts which hereditary and non-hereditary factors play. Take Dr. Brush's problem concerning the marriage of a normal person with a degenerate. Suppose the degenerate to be a feeble-minded person; there would be strong doubt in my mind whether the man desirous of marrying her is normal. I think that problem is not so common as it is in mendelian fields, where we can control the sexual relations. The marriage of two insane persons, I think, is relatively infrequent. At least I endeavored to collect data in this direction in the state of Massachusetts, which is supposed to be a highly degenerate state. I found a few instances of the union of two persons degenerate in the direction of insanity. The problem of the union of epileptics is economically a smaller one; it is not likely that two epileptics would marry unless they were also imbecile. I remember one meeting in which a man stated that he had a very good example of heredity. A grandfather, a father and a son showed epilepsy. "This," said he, "would form a good example for the hereditarian." But it turned out that the grandfather had senile arteriosclerosis with late epilepsy. The father was syphilitic, and the son had poliencephalitis with ensuing epilepsy. It seems hard for medical men to understand that most series of facts are a result of a conspiracy of factors, and in this conspiracy the hereditary and the non-hereditary factors may both play an important part. Which is the more important is the question. Medical men call certain conditions hereditary. What are the factors in these cases? The factors are mandatory. The children are under certain mathematical rules, subject to the disease of the parents. But there are conditions in which the hereditary factor is not mandatory; it is what the lawyers call permissive, and if the other factor that sets off the disease does not come into the life of the offspring, then the disease stands out and the heredity is so far concealed. On this line of distinction between the mandatory and the permissive types of factors in inheritance, I think that one may tend to resolve the difficulties which arise, when hereditarians on the one hand and the medical etiologists on the other get together and cannot come to terms.

DR. TOM A. WILLIAMS, Washington, D. C.: I was surprised to hear Dr. Davenport say that many of the traits which prevent a proper adaptation come from the lower animals. Of course, all our traits do originally come from the lower animals. But why select those particularly as coming from the lower animals? We should not refer to our remote origin in animals for such traits, but to the fact that there has been the acquisition of an unsuitable character in the germplasm—not an acquired character, but a modification of the germ-plasm through some noxious influence. It is not conceivable that a feeble-minded race can have survived through the eons of time through which the human species has persisted.

Those who should not marry and should not transmit are those who are the possessors of undesirable traits. If when an apparently desirable person happens to transmit to his or her offspring undesirable traits, such undesirable offspring should be prevented in their turn from begetting or bearing children, even though he may produce some healthy progeny.

There are certain tendencies which develop in children as well as in adults which are not the propensities of the race at all, but which occur by reason of the extreme differentiation of the reactions in different parts of the brain due to environment and other causes, which make it easy to pervert the natural tendencies, the capacity for which is inherent; considering the great complexity of the cortical substance in man it is very easy to pervert tendencies entirely by environment or education. One of the instances used by Dr. Davenport was pyromania; another, excessive libido. Each of these particular characteristics in an adult may be induced in childhood by a series of circumstances which have made those particular practices to him desirable; in the same way, there are individuals in whom the development of those tendencies, nat-

ural to us all, is so suppressed by environment as hardly to appear at all until given play later on in life.

DR. E. E. SOUTHARD, Cambridge, Mass.: Do you not suppose that the hereditary side of this question has been investigated frequently by the Freudians in regard to the tendencies just mentioned?

DR. TOM A. WILLIAMS, Washington, D. C.: I cannot speak for the Freudians, because I am not a Freudian myself. Dr. Davenport's solution of medical secrecy and the confidence of the patient in the medical man is beautiful for theoretical, sociologic environment, which we have not yet attained; but the practical issue, I fear, will be that those individuals who require medical assistance in connection with that which they believe may lead to their sterilization will be very careful to avail themselves of the assistance of those practitioners who are not official; in other words, they will resort to the charlatans and quacks who are always present among us. Therein perhaps would lie greater disadvantage to the community than if professional secrecy were retained inviolate.

DR. J. N. HURTY, Indianapolis: Nearly 200 years ago, Descartes, the most original man of this latter age, and one of the greatest thinkers we have ever had, whose thought has powerfully influenced modern investigation both from the experimental and from the speculative point of view, said that if ever the human race was to be raised to the highest practical level in all ways, physically, mentally and morally, the science of medicine would point the way. Descartes was not a physician; he was not connected with the science of medicine, which had not advanced, of course, in that day as it has now. I consider it a remarkable prophecy. I believe, therefore, that eugenics is largely a medical problem, and medicine must do much in solving it. I cannot help but accept, in the experience that I have had, the teachings we have had to-day from Dr. Davenport. I believe, too, with Descartes, that the salvation of the human race largely lies with the science of medicine.

DR. WARREN D. CALVIN, Fort Wayne, Ind.: Many restrictions should be placed on the license to marry, and properly enforced. In Indiana those applying for marriage licenses are supposed to give proper data as to their physical conditions; and I believe that there is a provision that the license must be refused in case certain conditions are found. But this law is not enforced; at least I know that it is not in our county, and I believe that Dr. Hurty will bear me out that it is not in general. Our county clerk recently informed me that he never had received answers of such a nature as to serve as cause for refusing a license. There is but one conclusion, and that is that many applicants falsify. Consequently, any law that we may secure the passage of along this line will not be worth the paper on which it is written, until we have educated the people to recognize its importance. Heredity cannot be too strongly emphasized. We have to contend constantly, however, with those who emphasize the other side of the question, the side of environment; advocating one side is not denying the other, for the two dovetail; we should show the import of heredity to the people at large. We are not the only people that are considering the question of eugenics. There is a multitude of people in all the learned professions that are considering the questions, with whom we can work. But on the heredity phase of the subject we are probably better fitted to educate people than any one else.

The question of heredity was brought to my mind by a little story. A professor, noted for his statistical knowledge and a member of the board of one of our state institutions for incorrigible boys, in talking with a prominent man, called attention to a boy just received at the institution. The professor said: "The mother of this boy was tuberculous and the father was cancerous; 95 per cent. of the descendants of such persons have conditions of mind and body such as you see in this boy." "Well," said the prominent citizen, "I have often wondered what was the matter with me. My father had cancer and my mother had tuberculosis." I do not know whether the man was joking at the time or not, but we can look about us and see people of note whose ancestral history is very bad physically; but, probably, unexpectedly good mentally. I want to ask Dr. Davenport whether or not he believes that there is not some danger of an increase in venereal diseases following the application of sterilization. These people know that they cannot become parents and for that reason is there not some danger of spreading venereal disease because of this knowledge on their part? If that be true, does sterilization present more than a partial solution of the problem?

DR. MATTHEW WOODS, Philadelphia: I would like to emphasize the fact that alcoholism in the parent does not have as much to do with the transmission of disease as was generally supposed. There seems to be a swinging of the pendulum in this direction among a certain class of medical men, and yet most of the old observers and nearly all French, English and German writers still say—not to be too exact—that about 40 per cent. of all cases of epilepsy are due to chronic alcoholism on the part of the parents or parent. This division of opinion may be due to the fact that a large number of epilepsies occur in families in which there is no apparent history of inebriation, the parents not only being temperate but teetotallers in the matter of drink; also to the number of families escaping neuroses when the parents were known to be intemperate. This discrepancy militating against the old theory may be explained by a knowledge of what seems to me the truth; that is to say, it is not so much chronic alcoholism, other things being equal, that results so often in the transmission of nervous disorders, as it is the fact that either one or both prospective progenitors were under the influence of alcohol at the time of conception. An otherwise temperate man, for example, at his own wedding or later may become, we shall say, exhilarated. We know now, thanks to Metchnikoff, the effect temporarily produced on the white and red corpuscles and the secretion by alcoholic exhilaration. This effect, extended to the spermatozoa, would account for the neurotic child, and yet it may never occur again in the life of the father, and the inebriation may have left no impression on his memory to record afterward. Epilepsies due to such an abnormal condition at the time of congress constitute, I am convinced, some of the cases supposed to occur spontaneously or without known cause. Again, in the case of drunken parents, they may be but periodic drunkards with intervals of sobriety, and the reason that sometimes they seem to have no epilepsy or other nerve disorders in the family is that the children were not begotten at a time when the parents were intoxicated. Investigate in this direction your next case of epilepsy if there is no family history of the disease and I will be surprised if, now and then, your discovery does not corroborate my theory.

For years I have felt we did not know all that was necessary to be known about these mysterious appearances of convulsions in families free from neurotic conditions. In looking into my case-book more carefully and by more searching inquiry, I succeeded in tracing seven cases of solitary epilepsy in so many families to seven almost solitary intoxications on the part of the parents. Such a fact or possibility should be emphasized in giving instruction to prospective parents.

DR. S. GROVER BURNETT, Kansas City, Mo.: I think Dr. Woods' argument only goes to prove, according to the data that have been collected pursuant to the mendelian law, that the sequelae of alcoholism are practically looked on as an inheritable unit.

DR. E. E. SOUTHARD, Cambridge: I think that the committee of the Breeders' Association would like to put the expensive and time-consuming intelligence of its workers on some single case or all those cases to work out the heredity, such as is practically impossible for any physician unless he puts all his time on it. I do not know how many months Dr. Davenport takes to work up such a set of cases properly. But it would require some labor to demonstrate that epilepsy is solitary, and to show that epilepsy is not an acquired epilepsy, due to brain tumor or some organic condition of the brain. To prove that 54 per cent. of the autopsies of one state hospital turned out in a long series are instances of organic epilepsy and not due to a brain tumor would be difficult. I do not suppose any one would think alcoholism could produce

such a condition; and to prove that three generations are free from alcoholism is a difficult task. I think the Breeders' Association would like to take up that problem. It occurs to me that it is a problem whether or not persons who engage in the sexual act under these conditions are neurotic. So that there will be some chance of there being neurosis in any case.

DR. C. B. DAVENPORT, Cold Spring Harbor, N. Y.: I am glad to know that physicians are giving advice to persons contemplating marriage. I have been told that some physicians do not consider it altogether in accordance with etiquette. I have never urged sterilization because I think it is a case in which legislation outruns public opinion. This is shown by the fact that of the eight states which have laws for sterilization in only two or three have any operations been performed under that law. Indiana is a conspicuous example of a state in which many operations have been performed, but I understand that one of the other states has recently begun sterilization. Public opinion is not supporting the commissions and they hesitate to act. Whether sterilization may not increase the amount of venereal disease is an important matter which I do not think can be answered offhand. I trust that we shall soon have some definite information on the matter. At present there is a field worker of the Eugenic Record office in Indiana who goes to the homes of the persons who have been sterilized and studies their subsequent history with special reference to the question whether the removal of the possibility of parentage either on his own part or on the part of the consort has made it easier for him to have frequent illegitimate unions which would be of a nature that would increase the spread of venereal disease. We shall have some facts bearing on that matter within the next six months.

I think that we have no reason for doubting that there have persisted through the last five thousand or ten thousand years without break one or more feeble-minded races. Of course, our detailed histories do not extend back so far. We merely know that when we go to a locality in the Berkshires and another in the Lake George region we can go back for seven generations and find that there has persisted a feeble-minded race without a break. Feeble-minded have married feeble-minded continually for that period; and if for the last seven generations why not for seventy or seven hundred generations? It seems probable that there has been such uninterrupted transmission of feeble-mindedness from remote generations. When I speak of feeble-mindedness though, I am speaking about something of whose essence I know nothing, and I do not think that any of us know much. There is talk of having a census of the feeble-minded. But how can we make a census of them until we have some way of defining them? I trust that in the next few years we may by further study and analysis of the subject get such precise knowledge that this question may be more intelligently discussed, and the census proposed may be more intelligently made.

ADAMS-STOKES DISEASE

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The Adams-Stokes syndrome consists essentially of three cardinal conditions: syncopal seizures with either complete or partial loss of consciousness, epileptiform or apoplectic convulsions and permanent bradycardia involving heart-block.

Usually the onset of an attack is preceded by certain auras in exactly the same way as is an epileptic attack. Vertigo is generally also present. These prodromal symptoms may be manifest as much as several days before the attack itself appears.

Stokes at first suggested the name of "pseudo-apoplexy" for this disease and laid special stress on the syncopal character of the seizures and the absence of paralysis. In the light of our present knowledge there must also be included the phenomenon of heart-block which is so prominent a feature of the condition: the blocking of the normal impulses traveling from the auricles to the ventricles and a dissociation in the rate and rhythm between the auricles and ventricles.

The following case, which I saw through the courtesy of Dr. J. J. Gailey of this city, shows some interesting relations:

The patient, M. K., was a married woman, aged 54. Her parents died when about 60 years of age, the mother from cerebral hemorrhage, the father from septicemia. She has two sisters who are said to be well, and had one brother who died of pneumonia. The patient had measles and scarlet fever in childhood; had pneumonia twice, once twenty-one years ago and again five years later. At about the age of 25, the patient married; the husband was a very hard drinker. Syphilitic history was present. The first three children were born at term. Subsequently the patient had five successive miscarriages.

Twelve years ago she had a cerebral hemorrhage. Her left extremities have since then been greatly weakened, though not paralyzed. As the patient expressed it, "shocks are so frequent in our family that we all more or less expect to get one." The shock she had also apparently produced a retinal hemorrhage in her left eye which since then has been blind.

Ever since the patient was 15 years old she has been subject to attacks of convulsions. At first they would occur once a month. They continued at this interval for twenty-five years, or until she was 40 years old, when they abruptly became less frequent, recurring every six months and later every year. At such times, however, the attacks would be multiple, four or five following in succession. The attack previous to the last one occurred three years ago. As well as she can remember, these attacks were always preceded by certain auras: vertigo, buzzing in the head and tingling in the fingers. There was always complete unconsciousness (so her sister says) and the convulsion would involve the whole body. There never was any biting of the tongue or subsequent paralysis.

The last attack occurred May 29, 1912. I reached her as she was regaining consciousness, the convulsion having subsided. Her sister, who is a trained nurse, stated that she had been unconscious for about half an hour. There was no incontinence of urine or feces. The temperature was slightly raised. There was marked rapid pulsation of the veins in the neck. Radial pulse-rate and ventricular beat were 35, and were intermittent and irregular. The pulse-tension was high and the arteries sclerotic. The auricular beat was 80 and very arhythmic. No murmurs were present, but both the second aortic and second pulmonic sounds were sharp and accentuated. Gallop rhythm and pulsus bigeminus were present. The urine was negative.

Subsequent examination showed auricles and ventricles acting synchronously, rate 40; pulse dicrotic and regular.

In this case, the luetic history, the presence of arterial degeneration, the heart-block associated with syncope and convulsions make the diagnosis of Stokes-Adams disease conclusive.

The question that arises in this case is, How long has this syndrome existed? Or is it only of recent origin?

According to Dieulafoy the duration of this disease does not exceed three or four years. Turrell and Gibson,[1] however, report a case which they had under observation for eight years. Inasmuch as the syndrome occurs in patients about the age of 50 and is so intimately related to lues and arterial degeneration, it is of course untenable that the seizures which the patient had since 15 years of age were always of this nature.

Were they previously epileptic? Very likely; although there is no previous history of trauma or hereditary pre-

1. Turrell and Gibson: Brit. Med. Jour., Nov. 14, 1908.

disposition to epilepsy. But if they were and had continued so, especially at the rate of their recurrence for twenty-five years, it is presumptive that at the present time she would have the status epilepticus. This she has not. On the contrary, the attacks suddenly decreased in frequency and the attack previous to this last one occurred three years ago. The conclusion is therefore permissible that this syndrome is an independent condition and of comparatively recent origin.

The auriculoventricular bundle (bundle of His) is the pathway for the conduction of impulses from the auricles to the ventricles. It is a part of the Purkinje system of fibers. It arises in the right auricle on the interauricular septum near the coronary sinus below the fossa ovalis. It then passes downward and forward through the fibrous ring between the auricle and ventricle. Then it divides into two branches, one for each ventricle, which pass down the interventricular septum and mingle finally with the ordinary cardiac muscle.

Pathologic changes, such as gummas, calcareous infiltration and fatty degeneration, in or near this bundle almost always produce a complete or partial heart-block. Cases are on record, however, in which at autopsy extensive changes have been found in the bundle without any symptoms having been evident during life.

In the case reported by Beck and Stokes,[2] it was found that the primary lesion consisted of a calcareous infiltration of the auriculoventricular groove and its surrounding muscle and fibrous tissue. This produced pressure on the bundle of His resulting in myocarditis with atrophy of the muscular fibers which therefore interfered with the normal transmission of impulses from the auricles to the ventricles.

In the case reported by Turrell and Gibson, no changes were found in the bundle or its branches. A fibrosis, however, was present in the central fibrous body of the heart which extended downward and encroached on the bundle.

In several cases reported from Muller's clinic[3] in Munich, one showed extensive pathologic changes in the bundle with only partial heart-block. Another showed a complete obliteration of the bundle and yet the ventricles frequently contracted in connection with the auricles. It is quite possible therefore that in cases of long duration other routes for conduction may become developed.

In cases of complete arhythmia in which no involvement of the bundle of His is discoverable, it is also possible that the Adams-Stokes syndrome may result from irritation or pathologic processes in the cardio-inhibitory fibers of the vagus nerve.

Is this syndrome always of a permanent character or may it be transient? That it may be transient is evident from a case reported by Gerhardt.[4] In this instance a young man, aged 25, had an acute inflammatory rheumatism. During the first week of this illness he had several attacks of heart-block which finally yielded to normal heart action. While recovering from the rheumatism he contracted typhoid fever from which he died in the fifth week. Autopsy showed inflammatory changes in the bundle of His. It is therefore possible for an acute infectious disease to cause inflammatory changes in the bundle resulting in transient attacks of heart-block.

Finally, the condition can be produced experimentally. Just as the pressure of a Gaskell clamp in the auriculoventricular groove of the frog's heart produces a block, so does compression of the bundle in the dog's heart produce a block. Tigerstedt and Erlanger have shown that by compressing the bundle either a partial or complete blocking of the impulse, depending on the degree of pressure, can be obtained. When the compression is made, the ventricle shows a slower rhythm than the auricle and independent of it. On removal of the pressure the ventricle again beats in harmony with the auricle. By a stronger degree of pressure the block may become complete, in which case the ventricular rhythm loses entirely its relationship with the auricular rhythm, the beat and the rate being much slower than that of the auricle and independent of it. In partial block, the ratio between the ventricular and auricular rate is definite, every second or third auricular beat being followed by a ventricular contraction. In complete block no such ratio exists. These experimental observations are in accord with the observed clinical facts.

255 North Main Street.

2. Beck, Harvey G., and Stokes, William Royal: Arch. Int. Med., October, 1908, p. 277.
3. Muller: Deutsch.-Arch. f. klin. Med., July, 1908.
4. Gerhardt: Deutsch. Arch. f. klin. Med., July, 1908.

PREVALENCE OF THE HEROIN HABIT

ESPECIALLY THE USE OF THE DRUG BY "SNUFFING"

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Heroin or diacetyl-morphin is so frequently employed in the treatment of various diseased conditions that the question of formation of habit from its use is a serious one. It is often prescribed for cough, the result of irritating conditions in the air-passages, and physicians not infrequently tell their patients what drug they are prescribing, so that indirectly the patient comes to look on heroin as a harmless sedative for his cough. Even physicians are not sufficiently alive to the danger of habit from its use. This in all probability is largely due to the fact that pharmacologic text-books lay very little stress on this point, and in many cases neglect to mention it altogether. In one instance a patient who came under my observation told a physician, who was called to treat him for an attack of laryngitis, not to give him anything that contained opium, because he had formerly been a slave to this drug. The physician replied: "I will give you some heroin; there is no danger of habit from that." This the patient took, with the result that he later had as much difficulty in breaking away from the heroin as from the opium habit.

In some cases, too, heroin is given hypodermically by surgeons to allay the discomforts before and after operations. That this may result in habit is illustrated by the following case which Atwood[1] reports:

> The patient was a neurotic woman, aged 29, who was given heroin hypodermically for relief from pain after an operation for appendicitis. The effect was so pleasant that she asked the name of the drug. On being told, she began to take it secretly, increasing the dose until she used daily from 2½ to 4 grains hypodermically. As a result she lost 50 pounds in weight, became greatly debilitated and her digestion was disordered. The heroin was immediately withdrawn, and, as a result, she had severe colic and diarrhea. Smaller doses were given, and then the drug was gradually discontinued, with good recovery.

1. Atwood, C. E.: A Case of Heroin Habit, Med. Rec., New York, 1905, lxvii, 856

Some patients who are addicted to the use of morphin substitute heroin because it is easier to obtain. A further reason for the use of heroin is that firms advertising preparations containing this opium derivative call attention to their harmlessness. As an example there is stated in the advertisements of a nostrum advertised in most of the medical journals that it "is decidedly preferable to preparations containing codein or morphin, by reason of the fact that it does not produce narcotism, constipation, gastric disturbance or habituation, even though its administration be protracted."

Pettey,[2] in the last 150 cases of drug habits coming under his care, saw eight cases of heroin addiction. Three of these were initial cases; in one the patient had been cured of the opium habit, but following an operation heroin was prescribed, and the habit followed. The remaining four patients purposely substituted heroin for morphin, to which they had been addicted.

The purpose of this paper is to call attention to the fact that heroin is being used extensively by means of "snuffing," in the tenderloin districts of large cities. Since my attention was called to this, I have made inquiry from patients with other drug habits who come to the Medical Department of the Dispensary of Western Reserve University and Lakeside Hospital, and I almost invariably have found that they are perfectly familiar with the use, among many of their companions, of heroin by snuffing. Patient 1, whose case I report below, said that he knew at least twenty of his associates who used the drug in this manner. They have no difficulty in obtaining the heroin, as they procure it from a common source, paying 60 cents for 100 one-twelfth grain tablets. The method of use is to take three or four tablets, fold in a piece of stiff paper, crush the tablets, and snuff the powder either from the paper or from the "snuff-box" on the dorsal surface of the base of the thumb. In another instance reported to me by Dr. Charles H. Tanner of Willoughby, Ohio, the patient used heroin in suppository form.

The symptoms in all of these cases resemble closely the symptoms of chronic opium poisoning, except that when heroin is used by snuffing, the patient has a chronic rhinitis. This is similar to the rhinitis with ulceration which has been reported by W. D. Owens[3] in those addicted to the use of cocain.

REPORT OF CASES

The following cases illustrate these statements:

CASE 1.—F. B., a man aged 21, nine months ago began to use morphin. Through the influence of his companions he changed to heroin, crushing the tablets and snuffing them. He now uses from seventy-five to 100 one-twelfth grain heroin tablets daily. His chief reason for changing from morphin to heroin was that it was easier to obtain. He says that at least twenty of his companions, many of whom work at soda-water fountains in drug-stores, use this drug. He says that the heroin makes him sleepier than morphin, although the effects of the latter last longer. When the effect begins to wear off he is very restless, especially in his arms and legs, walks the floor constantly, and is unable to concentrate his mind on anything. His nose runs, he has cramps in his abdomen and diarrhea, is very much depressed, and seems to be lacking in energy to do any work. He has lost 15 pounds in weight and is very nervous and restless. His face shows a peculiar pallor, his pupils are contracted, the nasal passages show evidences of a chronic rhinitis, and his tongue is heavily coated. His heart, lungs, abdominal organs and urine are normal. He was referred to an institution for treatment.

CASE 2.—J. O'D., a man aged 22, a companion of the first patient, began using heroin four years ago, on the advice of a friend, who had told him that it was good for a cold and for sore throat. He used three or four one-twelfth grain tablets daily until nine months ago when he increased to ten tablets. He now uses from seventy-five to 100 tablets daily by snuffing. He says that in Cleveland and in Toledo, his former home, heroin is used extensively in the tenderloin districts by men and women. His symptoms and his physical appearance are the same as described in the first patient except that he complained more of itching of the skin.

CASE 3.—A physician, aged 60, had previously been addicted to the use of morphin but had been cured. Five years ago he began to take heroin because he suffered from a chronic cough. At that time he thought that there was no danger of habit from its use, because he said he believed the statements of various manufacturing firms which stated that there was no danger of habit. He gradually increased the dose to 2 or 3 grains daily, taking the drug by mouth. He says that the effect of the heroin is more deadening than that of morphin. He was cured of his habit two years ago but since then he has been a physical wreck. I did not see the patient during the time that he was taking the heroin but the symptoms, as described by him and the other physicians who saw him at that time, are similar to those seen in chronic morphinism.

Case 3 is worthy of emphasis, because the patient, a physician, is positive in his statements that he was misled by the advertisements of proprietary medicines in medical journals. From these facts we may conclude that heroin should be prescribed with the same care as morphin because of the great danger of habituation.

2. Pettey, G. E.: The Heroin Habit, Another Curse, Alabama Med. Jour., 1902-1903, xv, 174.
3. Owens, W. D.: THE JOURNAL A. M. A., Feb. 3, 1912, p. 329.

DEMONSTRATION OF THE GREATER SUSCEPTIBILITY TO HEAT OF SARCOMA CELLS

AS COMPARED WITH ACTIVELY PROLIFERATING CONNECTIVE-TISSUE CELLS *

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The eradication of cancerous growths from the body by other than surgical means will depend on the discovery of some vulnerability of the cancer cell which is not shared by the cells of the organism. Any property which differentiates the cancer cell from the normal cell must therefore be regarded as important, and I wish in this brief communication to direct attention to experiments which indicate that the cells of rat and mouse sarcomas are less resistant to heat than are normal connective-tissue cells of these animals when both are placed under similar experimental conditions.

A number of observers have reported on the resistance of cancer cells to various chemical and physical agents. For example, it was shown that mouse carcinoma cells survive freezing with liquid air (Michaelis, Moore and Walker, Gaylord); or treatment with a 1:3,500 solution of mercuric chlorid (Clowes); and that rat sarcoma cells (in emulsions) are not all destroyed when subjected to seven-hundredth-normal potassium cyanid solution for forty hours (Loeb). The resistance of cancer cells to heat, though not so striking, has been emphasized by several observers (Jensen, Loeb, Clowes, Haaland).

Comparative studies, however, on the relative susceptibility of cancer and normal cells to harmful agents have been few in number, owing, no doubt, to the lack of suitable methods of comparison; for, whereas injuries

* From the Department of Pathology, College of Physicians and Surgeons, Columbia University. This investigation was conducted under the George Crocker Special Research Fund.

to cancer cells can be tested by their subsequent inoculation into animals, no equally satisfactory test has been available for determining injuries to normal cells.[1]

We now possess, however, in Harrison's method of cultivating tissues outside the organism, an easy means of studying normal and malignant cells under identical experimental conditions, and it is with the results obtained by the use of this method in comparing the susceptibility to heat of normal and tumor cells of the mouse that the present report is concerned. The study was undertaken at the suggestion of Professor MacCallum and forms one of a series of comparative studies on cancer cells and normal cells.

Dr. Hanes and I described in a previous communication[2] the successful cultivation of rat and mouse tumors in blood-plasma, and we have since shown that certain normal tissues of these animals are likewise capable of cultivation *in vitro*. In the present study, cultures of a transplantable mouse sarcoma and actively growing normal connective-tissue cells of the mouse have been employed. The connective-tissue cells were grown from small pieces of blood-vessel (aorta and pulmonary). In testing the resistance of the cells to heat, hanging-drop plasma preparations containing actively growing cells were placed for various lengths of time in a hot-air thermostat which subjected the cultures to temperatures above that of the body.[3] The cultures were afterward removed to an incubator kept at 38 C. (100.4 F.), and observations made at twenty-four-hour intervals.

The results show, first of all, that while both types of tissue exhibit the most active growth when incubated at from 37 to 39 C. (98.6 to 102.2 F.), cell wandering and multiplication take place also at from 40 to 41 C. (104 to 105.8 F.). Temperatures above 42 C. (107.6 F.) were found to be distinctly harmful and it was observed that the degree of injury sustained by either tissue is dependent on two factors: the height of the temperature and the duration of exposure.

Stated summarily, the results of these comparative studies show that corresponding to any degree of temperature between 42 and 47 C. (107.6 and 116.6 F.) a "time of exposure" may be found which will suffice to destroy sarcoma cells and yet allow connective-tissue cells to survive. For example, connective-tissue cells survive a temperature of 42.5 C. (108.5 F.) for from twenty-four to forty-eight hours, while sarcoma cells are killed; connective-tissue cells are viable after six hours' exposure to a temperature of 43 C. (109.4 F.), fifty minutes' exposure to 44 C. (111.2 F.), and twenty minutes' exposure to 46 C. (114.8 F.). The cells in sarcoma cultures receiving the same treatment are practically all killed. A smaller number of experiments with sarcoma and normal connective-tissue cells of the rat gave the same general result as with the mouse tissues; that is, normal cells proved to be the more resistant.

It is not to be inferred from the figures just given that sarcoma cells show a marked susceptibility to temperatures above that of the body; or, indeed, that there exists any great difference in the degree of resistance to heat exhibited by malignant and by normal connective-tissue cells of the mouse. On the contrary, it was necessary to carry out a number of experiments to determine the combinations of temperature and "time of exposure" which would effect the death of the one and allow the survival of the other tissue.

That sarcoma cells exhibit a considerable degree of hardiness the following results show: They survive a temperature of 42.5 C. (108.5 F.) for from six to twelve hours, 43 C. (109.4 F.) for three hours, and 44 C. (111.2 F.) for thirty-five minutes. These figures indicate one of the difficulties that would be met were the attempt made to raise the temperature of sarcoma cells in the body above their thermal death-point.

The object of this report is not to suggest a therapeutic measure but to record, in the course of a series of comparative studies on the biology of cancer cells and normal cells, a finding relating to the greater vulnerability of malignant tumor cells to at least one injurious physical agent. We work, however, with the idea that this method of investigation may bring to light a practicable point of attack on the cancer cell.

437 West Fifty-Ninth Street.

1. It may be suggested that the fact that adult skin as well as certain embryonic tissues of rats and mice can be successfully transplanted is opposed to the idea that animal inoculation may not afford a satisfactory method for testing the effect of injurious agents on normal body cells. It must be remembered, however, that normal tissues suffer a considerable degree of injury in the process of transplantation itself; and, furthermore, that growth after transplantation is limited, inconstant and in many instances transient in character. Nevertheless Gaylord reported (Jour. Infect. Dis., v, 445), that he could demonstrate by this method that the cells of the mouse embryo were killed by freezing with liquid air, whereas mouse carcinoma cells, though injured, survived such treatment.

2. Lambert and Hanes: THE JOURNAL A. M. A., Jan. 7, 1911, p. 33.

3. Objects placed in a hot-air bath reach the temperature of the surrounding medium much more slowly than in a water-bath. The figures given in the present report, therefore, do not indicate the actual time the cells were heated at the recorded temperature. Since the study was purely a comparative one, however, and the conditions were the same for both kinds of cells, the point is not one of any importance in this case.

PRIMULA DERMATITIS

ITS OCCURRENCE IN RURAL DISTRICTS

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During the last few years there have appeared in the literature many reports of cases of primrose dermatitis. In the dermatologist's experience a primrose dermatitis is not uncommon. The cases reported by Drs. Sweet,[1] Foerster[2] and Zeisler[3] were caused by the hothouse or domesticated primrose flowers. The class of cases in which I have been especially interested and to which I desire to call the attention of the country practitioner in particular are caused by the flowers of the wild primrose, *Primula farinosa*, Linné, which grows wild throughout the southern part of Wisconsin, Minnesota, Michigan and northern Illinois.

During the past six years, while in country practice, I have had occasion to treat many such cases and have divided them into three groups, acute, subacute with exacerbations each spring, and chronic. The acute cases come to the physician most commonly in April, May, June and July, when the primrose flowers are budding and in bloom. The subacute and chronic cases begin in the spring, and an acute exacerbation occurs each succeeding spring. It is not at all infrequent in districts where the primrose flowers grow abundantly to see these chronic cases extending over a period of time from ten to fifteen years. The most common diagnoses are eczema and dermatitis. I give cases illustrative of the three groups:

CASE 1.—*Acute Primula Dermatitis.*—G. N., aged 22, Norwegian, farm-hand, previous history negative, came to my

1. Sweet, E. A.: Poisoning by Primula Obconica, THE JOURNAL A. M. A., June 29, 1912, p. 2024.

2. Foerster, O. H.: Primula Dermatitis, THE JOURNAL A. M. A., Aug. 20, 1910, p. 642.

3. Zeisler, Joseph: Some Uncommon and Often Unrecognized Forms of Toxic Dermatitis, THE JOURNAL A. M. A., June 29, 1912, p. 2025.

office June 15, 1908, with characteristic eruption on thumb, index-finger and middle finger of right hand, and index-finger of left hand, most marked on radial side. On June 1 he had taken a walk through the fields and gathered wild primrose flowers. He also milked cows that during the night walked among these dew-laden flowers, thereby taking up the toxic principle on their udders to be transmitted later to the hands of milkers. Treatment consisted essentially of mild ointments and removal of the cause.

CASE 2.—*Subacute Primula Dermatitis.*—G. C., a man, aged 18, previous history negative and present health excellent, came to me May 20, 1910, with a distinct and characteristic eruption on the right index-finger extending to adjacent surface of the middle finger. The same eruption had appeared on the index-finger for the past four years and presently it involved the middle finger. He had had treatment each spring from physicians, who diagnosed the case as eczema. The trouble appeared each spring after the cows had been turned into a pasture that had quantities of primrose flowers; it continued until September or October.

CASE 3.—*Subacute Primula Dermatitis.*—The patient, G. R., had a severe acute attack in June, 1909, presenting the characteristic symptoms and history of primrose dermatitis. That fall he went to high school, coming home over Saturday and Sunday. During such a trip in May, 1910, he noticed the reappearance of the eruption on his hands and also on his forehead, for in perspiring, when milking, he would wipe his forehead. I advised the patient to remain in the city until August, which he did and recovered.

CASE 4.—*Chronic Primula Dermatitis.*—The patient, G. G. S., a man, aged 53, strong, previous history negative aside from present trouble, came to America from Norway in 1885 and located on present farm. In spring of 1887 he noticed that his hands, especially his thumbs and index-fingers, became sore and itched, and crusts would form, which he believed to be due to chapping although in fall and winter the reaction was less marked. Physicians diagnosed and treated the case as eczema. During the last twelve years the lesions extended to both elbows, and in 1908, when I first saw him, the pain was excruciating and the itching intense. During this time the patient had consulted dermatologists, each confirming the diagnosis of eczema and not one questioned him relative to the primrose. He had considered his case hopeless and my visit was for palliative measures. At this time Dr. Foerster's article[2] appeared. I found that over half of the patient's farm grew quantities of the primrose. I advised him to sell his farm and move to the city, which he did. The treatment that I used, aside from the removal of the source of poisoning, was:

Oil of cade	1 to 3 per cent.
Salicylic acid	1 to 3 per cent.
Mercury ammoniate	5 to 15 per cent.
Phenol (for itching when present)	1 to 2 per cent.
Zinc oxid ointment to make	100 per cent.

In six weeks the change was marked and the skin soon became normal, remaining somewhat red with few areas of scar tissue. The patient has been entirely free from the trouble for the past four years. I attribute the success of the treatment primarily to the removal of the exciting factors.

My conclusions are, first, that primrose dermatitis in the rural districts is not so uncommon as the literature leads one to believe, and, second, that the wild primrose flower can cause a violent dermatitis, lasting years, resembling very closely a chronic eczema: I wish to emphasize the thought that, in treating cases resembling acute and chronic eczema, the country practitioner should not lose sight of the fact that the wild primrose is capable of producing such lesions. In my series of cases I believe that the most common method of poisoning is through handling the udders of cows that have walked among the dew-laden flowers. The etiology, diagnosis and treatment have been covered very fully by Drs. Zeisler and Foerster.

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NOTE ON A NEW METHOD OF SUTURING BLOOD-VESSELS

J. SHELTON HORSLEY, M.D., RICHMOND, VA.

The method of suturing blood-vessels which I described recently in THE JOURNAL[1] consists in the use of a new instrument together with the application of a continuous mattress suture. The mattress suture apposes the intima more satisfactorily than the overhand stitch. I have found, however, that it is sometimes difficult to prevent leakage with the continuous mattress stitch, as the points between the sutures have but little compression by the suture and no raw surface. For this reason, if a leakage occurs, it is sometimes difficult to stop. This is particularly true when suturing vessels of different caliber, as in transplanting a segment of vein between the cut ends of an artery, and has been the chief objection to this method.

In order to overcome this objection, I have recently used a *double* mattress stitch, or cobbler's stitch, which has been so successfully employed by Dr. Crile in intestinal suturing. With this stitch properly used there will practically never be a leakage of more than a few drops, even when a segment of vein of large caliber is placed between the ends of an artery of much smaller caliber. The guy sutures are placed on the instrument as indicated in the article above mentioned, but instead of the guy suture that goes to the end of the short shaft being fastened to the button and cut, the unthreaded end only of the suture is wrapped around one of the buttons on the short shaft. This leaves two ends threaded in needles, one from the upper button on the long shaft and one from the end of the short shaft. The latter needle is passed through the margins of the vessel at the point where the upper guy suture on the long shaft passes through. Thus we have at this point two needles which are then used to make a double mattress or cobbler's stitch. A needle is taken in each hand and penetrates the edges of the vessel at about the same point. If passed at right angles to each other, the needles can be passed at the same time and drawn through quickly, the needle that points to the right being pulled through with the right hand and the needle that points to the left with the left hand.

This method of suturing is carried out in the first third, the threads being drawn snugly each time, then the handle of the instrument is depressed away from the operator and the second third is sutured; it is again depressed, this time toward the operator, when the last third is sutured. The suturing should be continued one stitch beyond the point of commencement, when the two threads are tied in an ordinary knot. There is no occasion for taking back stitches and the suturing can be quickly done, especially after a little experience in handling the needles after the manner of the cobbler stitch.

REPORT OF DEATH FROM UNRECOGNIZED DUODENAL ULCER FOLLOWING OPERATION FOR CHOLECYSTITIS

E. GARD EDWARDS, M.D., LA JUNTA, COLO.

The frequent existence of duodenal ulcer in conjunction with a diseased gall-bladder is a recognized fact. The case here detailed is given for the reason that the unrecognized duodenal ulcer was the cause of death in an operative case of cholecystitis which to all appearances was progressing to recovery.

History.—The patient, aged 54, six years prior to this operation had an attack of violent pain on the right side, which was diagnosed as gall-stone colic. Two years of perfect health followed; then a period of four years of indefinite history of indigestion. Five days prior to the time the patient was sent to the hospital a chill occurred, followed by a sudden rise of temperature to 103, vomiting and severe pain in the region of the gall-bladder. At the time of her admission to the hospital, an examination showed, in addition to the

1. Horsley, J. Shelton: A New Method of Suturing Blood Vessels, THE JOURNAL A. M. A., July 6, 1912, p. 4.

clinical symptoms, a blood-count of 4,200,000 reds, 12,400 whites. The urine was normal in every respect. Stomach contents showed normal acidity. Observation for two weeks failed to show occult blood in the stools at any time and only for the first eight days after the attack of pain had there been vomiting or rise of temperature. A palpable mass remained on the right side, though without marked tenderness. Without any appreciable change in the blood-count or urine (stomach contents not again being analyzed), operation was advised, the case being diagnosed as an infected gall-bladder.

Operation and Course.—Pus showed immediately on incision of the peritoneum and the mass was found to extend well down to the posterior border of the liver, the gall-bladder being pushed to the right side of the abdominal cavity. This, after being freed from its adhesions and opened, showed several large, faceted calculi. The gall-bladder, owing to its apparent necrotic condition, was removed. Convalescence was normal in every respect until the fifth day, when it was apparent from a sudden pulseless condition of the patient as well as from the almost immediate appearance of ingested liquids through the abscess opening that there was an opening from the duodenum to the abscess cavity. No attempt was made to repair this, the condition of the patient seeming to forbid further operative interference. Patient died two days later.

Necropsy.—This showed a ruptured duodenal ulcer, about three-fourths of an inch in diameter, a clean cicatrix at the separation of the gall-bladder from the liver and the abscess cavity practically obliterated.

This case is detailed on account of the existence (unrecognized by the operator) of the duodenal ulcer in addition to the abscess of the gall-bladder, after what he supposed was an exhaustive examination. Differential diagnosis was made on the following: A palpable mass in the region of the gall-bladder, a normal red blood-count, the leukocytosis, no vomiting after the first forty-eight hours and the absence of occult blood in the stools.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

CYCLOFORM.—Isobutyl para-aminobenzoate.—Para-aminobenzoic acid isobutyl ester. Cycloform is 2-methyl-propyl-3-amino-benzoate, $C_6H_4(NH_2)COO.CH_2.CH(CH_3)_2$, the 3-amino benzoic acid ester of 2-methyl-propan-1-Ol.

Cycloform is a fine white crystalline, odorless powder. It is soluble in ether, benzol, acetone, alcohol and olive oil, but only slightly soluble in water. It melts at 65°.

If 0.1-0.2 gm. cycloform be heated with a concentrated solution of sodium hydroxide the odor of isobutyl alcohol will become apparent.

If 0.1-0.2 gm. cycloform be heated with 5 Cc. of 25 per cent. hydrochloric acid or 10 Cc. of 20 per cent. sulphuric acid on a water-bath until a clear solution results the latter will yield on cooling a mass of white crystals.

If 0.1 gm. of cycloform be incinerated no weighable residue should remain.

Actions and Uses.—Cycloform is said to act only on wound surfaces or mucous membranes as a superficial and prolonged anesthetic and as a mild antiseptic.

It is said to be useful as a dressing for wounds and ulcers, especially chronic ulcers of the leg; in the treatment of burns, rectal diseases, chronic eczema, and painful conditions of the larynx and pharynx. It is said to be useful internally in cardialgia and obstinate vomiting.

Dosage.—As a dusting powder or in 5 to 20 per cent. ointments with petrolatum and in suppositories. Internally in doses of 0.1 Gm. to 0.2 Gm. (1½ to 3 grains).

Manufactured by the Farbenfabriken vorm. Friedr. Bayer & Co., Leverkusen, Germany (Farbenfabriken of Elberfeld Co., New York). U. S. patent No. 958,110 (May 17, 1910; expires 1927). U. S. trademark No. 73,892.

Therapeutics

OBSTRUCTIVE JAUNDICE IN CHILDREN

Jaundice occasionally occurs in young children, in whom it is generally a catarrhal jaundice, caused by inflammatory obstruction of the common duct. It sometimes occurs in groups, in families, or among children associated with each other, and may then be regarded as caused by some kind of infection.

While the treatment of this inflammation is not much different from that of the same condition in the adult, it is more important to select the proper food. To do this it is necessary to understand the physiologic relation of the bile to nutrition. Talbot[1] of Boston well presents the present understanding of this chemistry.

Talbot states that bile pigments and salts first appear in the intestine during the third month of fetal life. This bile, with the secretion of the intestinal canal and the desquamated epithelium, gradually accumulates to form the meconium. At birth the intestinal canal is sterile, but it shortly becomes infected and remains so throughout life. The bacteria are chiefly of the acid-forming group as long as the baby is fed human milk, but if the child receives cow's milk bacteria of the putrefactive or alkali-forming group are present.

Bile is excreted by the liver in the form of bilirubin, which is changed by oxidation and bacterial action into biliverdin, and later into hydrobilirubin. The latter may be converted into leukohydrobilirubin, if the putrefactive changes are greater. A considerable part of the bile, after performing its part in digestion, is absorbed and carried back to the liver, where it is reconverted into bilirubin. Hydrobilirubin does not appear in any amount in the feces until putrefaction is well established; this commences when the child begins to have cow's milk, which contains more casein than does human milk. Two other bodies, urobilin and urobilinogen, which correspond with hydrobilirubin and leukohydrobilirubin, but which are not chemically identical with these bodies, also occur. Urobilinogen is formed by the action of bacteria, and cannot be found in the urine or feces when the bile-duct is obstructed and bile cannot enter the intestine.

The important function of the bile is to aid the pancreatic juice in the digestion and absorption of fat. Neutral fat is first split into fatty acids, and these are then converted into soaps. Unsplit fat is absorbed with difficulty, or not at all. Bile facilitates the emulsification of fats and increases the fat-splitting action of the pancreatic juice. Bile also has the power of dissolving fatty acids and of increasing the solubility of soaps in water. The bile takes but little part in the digestion of proteins and carbohydrates; at least these foods can be digested in the absence of bile. Hence

1. Talbot, F. B.: Am. Jour. Dis. Child., June, 1912, p. 398.

when bile is prevented from entering the intestinal canal the absorption of fat is seriously interfered with, only about 40 per cent. of fat being absorbed, while normally 90 per cent. of the fat ingested is absorbed.

Talbot quotes Schmidt as stating that about 25 per cent. of dried feces of healthy individuals is fat, which represents about 5 per cent. of the fat ingested, while with jaundice due to obstruction about 50 per cent. of the dried feces is fat, which represents about 25 per cent. of the total fat ingested.

The clay color of the stools in obstructive jaundice is due partly to the absence of bile pigments and partly to the presence of excessive quantities of fat. Talbot says, "It must be remembered, in this connection, that leukohydrobilirubin is white bile, and that the white stools, such as are seen in other types of indigestion due to fat, do not mean of themselves that there is no bile in the feces."

Talbot's investigations, in the out-patient department of the Massachusetts General Hospital, of children who have obstructive jaundice show that jaundice generally appears suddenly, with fever, vomiting and pain in the stomach, which lasts for a day or two and is followed by jaundice, clay-colored stools, bile in the urine and loss of appetite. In other cases the onset may be insidious, without fever, following an indiscretion in diet, especially in fat and sugar. These cases may appear as a complication of some infectious disease, such as diphtheria, the exanthems and otitis media. The liver is enlarged in about three-fourths of the cases. Fever and vomiting at the commencement of the disease are also present in about three-fourths of the cases.

If the obstruction to the entrance of bile to the intestine is complete, urobilinogen will be absent from the urine.

The treatment of acute catarrhal jaundice in children, aside from that necessary for the fever or pain, is to keep the patient warm in bed, as chilling increases the abdominal congestion; give frequent hot baths; apply warm or hot fomentations to the abdomen, and administer laxatives. The ingestion of fat and sugar should be restricted. Cow's milk contains a more or less large amount of neutral fat; therefore if milk is used it should be skimmed; generally the patient is better without milk. He may have some simple starches, as thin cereals. If the patient has no fever, he may have eggs, and a small amount of simple meats if he is old enough for meat. Potato is perhaps one of the least digestible, according to Talbot, of the starches.

Small doses of bismuth subcarbonate combined with sodium bicarbonate are always soothing to the duodenum, and the alkali may render the mucous plugs more easily dislodged. Ammonium chlorid in small doses, given in sour mixture or dissolved in plain water and administered with some effervescent water, tends to make the mucus and the catarrhal exudate in the bile-ducts less tenacious and hence more easily dislodged. The dose of ammonium chlorid for a child 5 years old would be 0.2 gm. (3 grains) three times a day, after meals.

The appetite is generally poor when there is jaundice, and sometimes 1 drop of the tincture of nux vomica in a wine-glass of water, as a simple bitter, will be acceptable as an appetizer in older patients. Young children will rarely accept this bitter. On the other hand, it is not wise to push the food much in catarrhal jaundice when there is no appetite.

For a long time after the patient is convalescent, chilling of the body should be avoided, and non-stimulating, non-irritant food should be taken, as recurrences of the duodenal inflammation readily take place.

The laxative selected depends on the age of the patient. The proper dose of calomel, with an alkali, is generally the best laxative at first. Later one of the laxative waters may be given, or one of the effervescing laxative saline powders; if the patient is a child, senna or cascara are simple and satisfactory laxatives.

Whether the patient is an adult or a child, the abdomen especially must be kept warm for some weeks or even months, and a child, at least, should wear a flannel abdominal bandage for a time.

DISTURBANCES OF THE HEART

(Continued from page 2089)

CHRONIC DISEASE OF THE VALVES

Before discussing the treatment of broken compensation in general, it may be well to describe briefly the differences in the symptoms and treatment of the various valvular lesions.

MITRAL STENOSIS: MITRAL NARROWING

This particular valvular defect occurs more frequently in women than in men, and between the ages of 10 and 30, and is generally the result of rheumatic endocarditis or chorea, perhaps 60 per cent. of mitral stenosis having this origin. Other causes are various infections or chronic disease, such as nephritis. Of course, like any valvular lesion, it may be associated with other lesions, and sooner or later in many instances, when the left ventricle becomes dilated or weakened, mitral insufficiency also occurs.

It has sometimes seemed that high blood-pressure has caused the left ventricle to act with such force as to irritate this mitral valve and later develop from such irritation a sclerosis or narrowing, and stenosis occurs. It has been suggested that, though lime may be of advantage in heart weakness, as will be stated later, if the blood is overfull of calcium ions the valvular irritations may more readily have deposits of calcium, in other words, become calcareous, and therefore cause more obstruction. It is quite likely, however, that this sort of deposit is only a piece of the general calcification of tissue in arteriosclerosis and old age and could not be caused by the administration of calcium to a younger patient, and might then occur in older patients even if substances containing much calcium were kept out of the diet. Calcium metabolism in arteriosclerosis, and in softening of the bones is not well understood.

Patients with this lesion are seriously handicapped when any congestion of the lungs occurs, such as pneumonia, pleurisy or even bronchitis. Asthma is especially serious in these cases, and these patients rarely live to old age.

The pulse is generally slow, unless broken compensation occurs; dyspnea on exertion is a prominent symptom; the increased secretion of mucus in the bronchial tubes and throat is often troublesome, and there is likely to be considerable cough. If these patients have an acute heart attack a feeling of suffocation is their worst symptom and the dyspnea may be great, although there may be no tachycardia, these hearts often acting slowly even when there is serious discomfort. When compensation fails there is an occurrence of all the usual symptoms, as previously described.

The distinctive diagnostic physical sign of this lesion is the diastolic and perhaps presystolic murmur heard

over the left ventricle, accentuated at the apex and transmitted some distance to the left of the heart. There is also an accentuated pulmonary closure. To palpation this lesion often gives a characteristic presystolic thrill at and around the apex.

The first symptoms of weakening of the compensation are irregularity in the beat and venous congestion of the head and face, causing bluing of the lips, often nosebleed and sometimes hemoptysis and insomnia. Later the usual series of disturbances from dilatation of the right ventricle occurs. As previously stated, with the absence of good coronary circulation and the consequent impaired nutrition, the left ventricle may also dilate and the mitral valve may become insufficient. Sudden death from heart failure may occur with this lesion more frequently than with mitral insufficiency and less frequently than with aortic insufficiency.

A particularly dangerous period for women with this lesion is when the blood-pressure rises after the menopause and the patients become full-blooded and begin to put on weight. Also, these patients always suffer more or less from cold extremities. In most cases they sleep best and with least disturbance with the head higher than one pillow.

Besides the usual treatment for broken compensation in patients with this lesion, digitalis is of the greatest value, and the slowing of the heart by it, allowing the left ventricle to be more completely filled with the blood coming through the narrowed mitral opening during the diastole, is the object desired. This drug acts similarly on both the right and left ventricles, and though there is no real occasion for stimulation of the left ventricle, and it is the right ventricle that is in trouble, dilated and failing, still a greater force of left ventricle contraction helps the peripheral circulation. The action on the right ventricle contributes greatly to the relief of the patient by sending the blood through the lungs and into the left auricle more forcibly, and the left ventricle receives an increased amount of blood, the congestion in the lungs is relieved and the dyspnea improves. Perhaps there is no class of cardiac diseases in which more frequent striking relief can be obtained than in these cases of mitral stenosis.

If the congestion of the lungs is very great and death seems imminent from cardiac paralysis, if cyanosis is serious and bloody, frothy mucus is being expectorated, venesection and an intramuscular injection of aseptic ergot may be indicated. Digitalis should also be given, hypodermatically perhaps, but its action would be too late if it was not aided by other more quickly acting drugs. The physician may often save life by such radical measures.

MITRAL INSUFFICIENCY: MITRAL REGURGITATION

This is the most frequent form of valvular disease of the heart, and is due to a shortening or thickening of the valves, or to some adhesion which does not permit the valves to close properly, and the blood consequently regurgitates from the left ventricle into the left auricle during the contraction of the ventricle. Such regurgitation may occur without valvular disease if for any reason the left ventricle becomes dilated sufficiently to cause the valve to be insufficient. Such a dilatation can generally be cured by rest and treatment. As with mitral stenosis, the most frequent causes are rheumatism and chorea, with the occasional other causes as previously enumerated.

The characteristic murmur of this lesion is a systolic blow, accentuated at the apex, transmitted to the left of the thorax, generally heard in the back, near the lower end of the scapula, and transmitted upward over the precordia.

Of all cardiac lesions, this is the safest one to have. Sudden death is unusual, the compensation of the heart seems to be most readily maintained, and the patient is not so greatly dangered by overexertion or by inflammations in the lungs. As in mitral stenosis, any increase in blood-pressure—whether the normal increase after the age of 40, any continued earlier high tension or increase from occupation or exercise—is serious as causing the left ventricle to act more strenuously, so that more blood is forced back into the left auricle, the lungs become congested, and the right ventricle, sooner or later, becomes incompetent.

When compensation fails with these patients, the first sign is pendent edema of the feet, ankles and legs; subsequently, if there is progressive failure of compensation, the usual symptoms occur.

The treatment is principally rest and digitalis, and the recovery of compensation is often almost phenomenal. Patients with this lesion are likely to be children and young adults, and the heart muscle readily responds as a rule to the treatment inaugurated. Later, in these patients, or if the lesion occurs in older patients, the return to compensation does not occur so readily. If the condition is developed from a myocarditis or from fatty degeneration of the heart, it may be impossible to cause the left ventricle to improve so much as to overcome this relative dilatation or relative insufficiency of the valve. If the dilatation of the left ventricle is due to some poisoning such as nicotin, with proper treatment —stopping the use of tobacco, administration of digitalis, and rest—the heart muscle will generally recover and the valve again properly close.

AORTIC STENOSIS: AORTIC OBSTRUCTION

Valvular disease at the aortic orifice is much less common than at the mitral orifice, and while stenosis or obstruction is less common from rheumatism or acute inflammatory endocarditis than is insufficiency of this valve, a narrowing or at least the clinical sign of narrowing, denoted by a systolic blow at the base of the heart over the aortic opening, is in arteriosclerosis and old age of frequent occurrence. If such narrowing occurs without aortic insufficiency at the age at which it usually occurs, it may not seriously affect the heart. It may follow acute endocarditis, but it most frequently follows chronic endocarditis or atheroma, in which the aortic valves become thickened and more or less rigid; this condition most frequently occurs in men.

Anything that tends to increase arterial tension, as tobacco, lead or hard work, or anything that tends to cause arterial disease, as alcohol or syphilis, is often the cause of this lesion.

At times the edges of the valves may grow together from ulcerative inflammation, and the lumen thus be diminished in size; or projecting vegetations may interfere with the opening of the valve and with the flow of blood. With such narrowing the left ventricle more or less rapidly hypertrophies to overcome its increased work.

The murmur caused by this lesion is a systolic one, either accentuated in the second intercostal space at the right of the sternum, or perhaps heard loudest just to the left of the sternum in this region. The murmur is also transmitted up the arteries into the neck, and may at times be heard in the subclavian arteries. It may also be transmitted downward over the heart. The pulse is slow, the apex of the rise of the sphygmographic arterial

tracing is more or less sustained and rounded, and the rise is much less than normal.

If this lesion occurs in old age, there is general arterial disease present and the tension and compressibility of the arteries vary, depending on how much they are hardened. The disturbed circulation is evidenced by imperfect peripheral circulation and capillary sluggishness, with at times pendant edema of the feet and ankles, but, perhaps, little congestion of the lungs. The left ventricle being sufficient, there is no damming back through the left auricle to the lungs. The left ventricle may, however, become weakened, either by some sudden strain or by a chronic myocarditis, and relative insufficiency of the mitral valve may occur. The subsequent symptoms are typically those of loss of compensation.

This lesion may allow a patient to live for years, provided no other serious disturbance of the heart occurs, such as myocarditis or coronary disease; but sooner or later, with the failing force of the blood-flow and the lessened aortic pressure, slight attacks of anemia of the brain occur, causing syncope or fainting. Also, sooner or later these patients have little cardiac pains. They begin to "sense" their hearts. There may not be actual anginas, but a little feeling of discomfort, with perhaps pains shooting up into the neck, or a feeling of pressure under the sternum. Little excitements or overexertions are likely to make the heart attempt to contract more rapidly than it is able to drive the blood through the narrowed orifice, and this alone causes cardiac discomfort and the feeling of cardiac oppression.

It is essential, then, that these patients should not hasten and should not become excited; and any drug or stimulant that would cause cardiac excitement is bad for them. On the other hand, these are the very patients in whom, sometimes, alcohol in small doses may be advisable, especially if the patient is old; and a dose of alcohol used medicinally when an attack of cardiac disturbance is present is good treatment. The quick dilatation is valuable. Nitroglycerin will also do good work in these cases, and with high blood-tension may be the only safe drug for the patient to have on hand. As soon as his attack occurs, with or without real angina pectoris, let him dissolve in his mouth a nitroglycerin tablet. If he feels faint, he will feel better the moment he lies down, and in this instance he may be improved by a cup of coffee, or a dose of caffein, camphor or ammonia.

If the left ventricle becomes still weaker and shows signs of serious weakness, or if there is actual dilatation, the question of whether or not digitalis should be used is a subject for careful decision. The left ventricle should not be forced to act too sturdily against this aortic resistance. Consequently the dose of digitalis must be small. On the other hand, it frequently happens, especially in old age, that myocarditis or fatty degeneration has already occurred before this cardiac weakness develops in the presence of aortic narrowing, and digitalis may not be indicated at all. We cannot tell how far degeneration may have gone, however, and small doses of digitalis used tentatively and carefully, perhaps two or three drops of an active tincture two or three times a day, and then the drug carefully increased to a little larger dose to see whether improvement takes place, is the only way to ascertain whether digitalis can be used with advantage or not. If it increases the cardiac pain and distress, it should not be used. Strychnin is then the drug that should be relied on, with such other general medication as is needed, combined with the coincident administration of nitroglycerin, which may also be given in conjunction with digitalis, if deemed advisable. Generally, however, if a heart with aortic stenosis needs stimulation the blood-pressure is generally none too high, although there may be arteriosclerosis present. Therefore when nitroglycerin is indicated to lower blood-pressure, digitalis is not usually indicated; when digitalis is indicated to aid the heart, nitroglycerin is generally not indicated. These patients must have high blood-pressure to sustain perfect circulation at the base of the brain.

Patients who have this lesion should not use tobacco in large amounts, or sometimes even small amounts, as tobacco raises the blood-pressure and thus puts more work on the left ventricle; in the second place, if the left ventricle is failing, much tobacco may hasten its debility. On the other hand, with a failing left ventricle and a long previous use of tobacco it is no time to prohibit its use absolutely. A failing heart and the sudden stoppage of tobacco may prove a serious combination.

AORTIC INSUFFICIENCY: AORTIC REGURGITATION

This lesion, though not so common as the mitral lesion, is of not infrequent occurrence in children and young adults as a sequence of acute rheumatic endocarditis. If it occurs later in life it generally is associated with aortic narrowing, and is a part of the general endarteritis and perhaps atheroma of the aorta. Sometimes it is caused by strenuous exertion apparently rupturing the valve.

This form of valvular disease frequently ends in sudden death. On the other hand, it is astonishing how active a person may be with this really terrible cardiac defect. This lesion, from the frequent overdistention of the left ventricle, is one that often causes pain. While the left ventricle enlarges enormously to overcome the extra distention due to the blood entering the ventricle from both directions, the muscle sooner or later becomes degenerated from poor coronary circulation. Unless the left ventricle can do its work well enough to maintain an adequate pressure of blood in the aorta, the coronary circulation is insufficient, and chronic myocarditis is the result. If the left ventricle has maintained this pressure for a long time, edemas are not common unless the cardiac weakness is serious and generally permanently serious; that is, slight weakness, in this lesion, does not give edemas as does slight loss of compensation in mitral disease, and unless the weakness of the ventricle is serious, the lungs are not much affected.

The physical sign of this lesion is the diastolic murmur, which is loudest at the base of the heart, is accentuated over the aortic orifice, and is transmitted up into the neck and the subclavians, and down over the heart and down the sternum with marked pulsations of the arteries (Corrigan pulse) and often of some of the peripheral veins, notably of the arms and throat.

If the left ventricle becomes dilated the mitral valve may become insufficient, when the usual lung symptoms occur, with hypertrophy of the right ventricle; and if it fails, the usual venous symptoms of loss of compensation follow. This lesion not infrequently causes epistaxis, hemoptysis and hematemesis.

Digitalis is always of value in these cases, but it should not be pushed. If a heart is slowed too much the regurgitation into the left ventricle is increased. Therefore such hearts should not be slowed to less than eighty beats per minute, or sudden anemia of the brain and sudden death may occur. These patients must not do hard work.

(To be continued)

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[For other information see second page following reading matter]

SATURDAY, DECEMBER 14, 1912

SOME UNTOWARD FEATURES OF SUBCUTANEOUS NUTRITION

The desirability of having some appropriate procedure whereby food can be introduced into the organism at times when, owing either to pathologic developments or to surgical complications, the participation of the alimentary tract in the digestive preparation of the food is precluded, has encouraged repeated attempts to devise a suitable substitute for the natural ingestion of our nutrients. There are published records of numerous attempts at subcutaneous and other forms of parenteral nutrition with complete avoidance of the gastro-intestinal canal. In the case of the soluble carbohydrates, such as dextrose, some success has apparently been achieved. The employment of fine emulsions of oil for subcutaneous injections has found temporary advocacy through the researches of Mills and Murlin,[1] who have reported favorable gains in this way, although the earlier experiences with the subcutaneous use of fat for nutritive purposes were anything but encouraging. Until more recently the parenteral introduction of proteins has frequently been reported to be accompanied by a considerable output of protein in the urine so that the nutritive possibilities involved were unpromising. The newer facts of hypersensitiveness have served only to complicate the problem.

A recent investigation of the possibilities of subcutaneous nutrition which Dr. Ornstein has carried out in Professor Tangl's laboratory in Budapest[2] reveals a somewhat unexpected element of danger which must serve as a warning against wide-spread application of procedures which are based on limited experimental trial. Ornstein has noted that the utilization of blood-serum and sugar introduced subcutaneously into starving dogs may be apparently excellent for some time. The tissue components can be spared by this somewhat indirect supply of nutriment, and although the availability of the furnished energy is distinctly less than what is experienced with a comparable quantity of food presented by the usual oral path, the results are nevertheless sufficiently striking to direct attention to the possibilities of feeding in this manner. It transpires, however, that if this mode of parenteral introduction (which in comparison with intravenous or intraperitoneal methods is the only one that offers any permanent practical usefulness) is daily continued more than a few days, cachectic symptoms ensue; and if the subcutaneous procedure is persisted in, death may follow amid symptoms of anaphylactic shock.

This procedure might have been regarded as an adequate nutritive measure if judged by its incipient success; its ultimate failure plainly teaches the hidden dangers of any limited or one-sided nutritive or dietetic scheme which has not been tested over sufficiently long periods of time to establish conclusively either its physiologic harmlessness or its therapeutic utility.

1. Mills, Lloyd H., and Murlin, J. R.: The Influence of Oils and of Lecithin on the Protein Metabolism, Proc. Soc. Exper. Biol. Med., 1911, vii, 166. Mills, L. H., and Congdon, E. A.: The Utilization of Fats and Oils Given Subcutaneously, Arch. Int. Med., May, 1911, p. 694; abstr., THE JOURNAL A. M. A., June 10, 1911, p. 1757.

2. Ornstein, L.: Stoffwechselversuche mit parenteraler Ernährung, Biochem. Ztschr., 1912, xliv, 140.

SUGGESTION IN HYPERTHYROIDISM

Recently a series of cases of hyperthyroidism have been reported in which various operations on the nose and throat have brought great relief of symptoms and sometimes such a remission of the uncomfortable manifestations of the affection as would ordinarily be called a "cure." In the majority of these cases hypertrophied turbinates were found and various methods of treatment, especially cauterization, were followed by favorable effects on the constitutional affection. Successful treatment of other pathologic conditions of the nose, however, as nasal polypi and spurs on the septum, had a similar beneficial result. The removal of adenoids from the throat and of hypertrophied tonsils had a like favorable action.

These reports do not serve to alter the status of hyperthyroidism or its connection with some definite disturbance of glandular metabolism within the body, but they emphasize the fact that favorable influence on the minds of patients suffering from even outspoken hyperthyroidism is likely to have a most happy effect. If these patients become persuaded that some mode of treatment is likely to be beneficial, there is prompt relief of most, and sometimes, it would almost seem, of all of their symptoms shortly after the institution of the treatment in question. Such persons are eminently susceptible to suggestion and it seems probable that in many cases the functional disturbance of glandular secretion which brings about the symptoms of hyperthyroidism is due to the effect of worry and mental anxiety in a subject whose sympathetic nervous system is not strongly under control but may be rather readily affected by the patient's mental condition.

This probability suggests a possible reason why so many remedies and methods of treatment suggested for hyperthyroidism have proved alluringly curative in a number of cases when the treatment was first instituted and have afterward proved quite inefficient. During the last twenty years nearly a score of different remedies

have apparently proved distinctly beneficial to sufferers from hyperthyroidism. Nearly twenty years ago an English surgeon used thyroid in the treatment of the disease and reported good results. Later after more careful analysis of his cases and their treatment he found that while he thought that the butcher was supplying him with thyroid he had actually been giving his patients thymus. In other hands neither thyroid nor thymus did any good. In a few reported cases parathyroid improved the symptoms at least of hyperthyroidism, and epinephrin and other glandular products have had some reported successes. Then came the use of various serums obtained from thyroidectomized animals which relieved symptoms. Then a preparation of animal serum obtained after the injection of portions of enlarged human thyroids into animals seemed to do good. After a time, however, all of these remedies proved unavailing.

In the older history of medicine much is said about goitrous conditions which could be cured by various methods. One favorite mode of treatment was by wrapping a dead snake around the neck or in milder cases the sloughed-off skin of a snake. Still another method was the touch of the rope by which a man had been hanged. Occasionally the touch of the hand of an executed criminal was a favorite mode of treatment. Burnt sponge and burnt seaweed, each of which probably contains iodids, were also said to be beneficial. Mummy, which retained its place as a remedy until well on in the eighteenth century, was said to be particularly efficient in the cure of these goitrous conditions. It is evident that throughout the ages the suggestibility of patients suffering from exophthalmic goiter has made them favorite subjects for all sorts of therapeutic experiments which seemed to have a good effect.

The story of the last twenty years when compared with that of the preceding period enables us now to recognize the necessity for the careful and critical investigation of any remedy or mode of treatment that may be asserted to benefit this affection. This applies as well to surgical procedures as to purely medical remedies.

EXPERIMENTAL SCURVY

The possibility of imitating, by experimental methods, the pathologic lesions or other manifestations of specific diseases has always been of great advantage in scientific medicine. In the case of the bacterial infections it has given a means of studying prophylactic or curative measures without recourse to human patients. Most of the therapeutic advance achieved in the field of immunity has been accomplished through the aid of experimentally produced disease. The disorders of nutrition, on the other hand, have been far less easy of imitation in the same way. Experimental diabetes, for example, is not always an exact analogue of the human type; and the pathology of purin metabolism as manifested in gout has scarcely been reproduced in laboratory animals.

It was a distinct step in the direction of progress when the essential features of beriberi could be induced in animals by appropriate feeding. The polyneuritis of birds which was described in the classic researches of Eijkman is the close imitation of a human disease which has benefited by the newer knowledge of the etiology of the former. Another disorder, scorbutus, has now lent itself to more effective scientific investigation, since its salient features have been produced experimentally by Axel Holst of Christiania.[1]

There have been at least three prominent theories advanced to explain the origin of human scurvy. 1. Scorbutus has been regarded as an infectious disease. 2. It has been attributed to decayed food which induces a sort of alimentary intoxication. 3. The most widely current view has charged scorbutus to protracted lack of fresh food, notably fresh vegetable food. This explanation has obtained a wide acceptance and fits many of the known experiences. Notable exceptions have always raised doubt in the minds of critical investigators, a most striking illustration occurring in the well-known case of the polar explorers Nansen and Johansen, who subsisted on meat and fat alone during their memorable winter in Franz-Josef Land. The experiments of Holst and his colleagues have shown that it is possible to induce in certain animals, notably guinea-pigs, pathologic changes which correspond with the scorbutic symptoms of man. The method consists in feeding exclusively with various cereals or bread; so that here again the dangers of a one-sided dietary are brought into surprising prominence. All of the diagnostic signs — looseness of the teeth, hyperemia of the gums, bloody extravasations in various regions about the bones or in the non-skeletal portions of the extremities, pathologic manifestations in the epiphyses, and even occasional subcutaneous hemorrhages — are reproduced in the suitably fed animals. These striking phenomena of scurvy do not occur, however, when certain other types of food, such as carrots, cabbage, etc., form the exclusive diet. It might appear as if the manifestations with the cereals were primarily those of inanition; but a careful analysis shows that this is not the case.

Fresh vegetables have long had a reputation as antiscorbutic agencies. This belief finds a considerable justification now in Holst's observation that the experimental disease can be averted or relieved by many of these green vegetables, of which cabbage is an illustration. Cooking as a rule diminishes the curative potency of the fresh vegetables; and a temperature of from 110 to 120 C. (230 to 248 F.) appears generally to be more destructive to the effective substance than is the boiling temperature. Drying likewise may be detrimental to the preservation of the antiscorbutic properties of fresh vegetables.

It would take us too far afield here to relate the numerous details of interest which have come out in

1. Holst, Axel, and Frölich, Theodor: Ueber experimentellen Skorbut, Ztschr. f. Hyg. u. Infectionskrankh., 1912, lxxii, 1.

these studies. The important fact is that the whole subject is now opened for investigation in an experimental way, without depending solely on statistical information gathered from human experience or waiting for suitable clinical material. The human patient and medical history may now be expected to furnish suggestions or corroboration of the laboratory findings. In any event it is clearer than ever that scorbutus is primarily a disease of faulty nutrition induced by inappropriate feeding; and the unsolved problems of infantile scurvy appear nearer to solution.

The chemical nature of the somewhat unstable additional substance which is essential to perfect nutrition when cereals form the bulk of the diet remains to be ascertained. With regard to the mode of administration of the antiscorbutic products it can already be said, however, that intraperitoneal injections have hitherto shown no prophylactic potency, the alimentary tract appearing to be the efficient channel of administration. The goal of success will, of course, be the discovery of the exact chemical make-up of the active substances which must at present be sought in crude extracts and similar mixtures. Meanwhile we are learning more and more about the peculiar nutrient rôle of individual foodstuffs.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT

Injuries to the semilunar cartilages, while one of the most frequent types of derangement of the knee-joint, have been much neglected in the literature dealing with joint surgery. The condition is one in which early recognition of the injury is extremely important, inasmuch as observation has shown that recurring attacks are practically inevitable unless precautions are taken against them. It may be of interest, therefore, to review briefly the observations of Martin[1] based on 449 cases in his personal experience.

Of these 449 cases 282 occurred in miners, and 81 in football players, a total of 80.8 per cent. due to mining and football. Other forms of sport caused 2 per cent. The coal-miner performs his work with the knees more or less flexed owing to the lowness of the veins in which he works; under these circumstances a slight swing of the body wrenches the knee or twists the joint, and the cartilages are torn. Usually the cartilage, nipped between the two bones, is dragged toward the center of the joint and split longitudinally. In the case of football the running is not straightaway, but consists rather of dodging, twisting and swerving, and this, coupled with the fact that the cleated boots tend to hold the foot momentarily while the knee rotates, gives the exact mechanism for producing the injury.

In 92 per cent. of the instances the internal semilunar cartilage was the one affected, in 53.3 per cent. the right knee was involved and in 46.7 per cent. the left knee. These figures correspond closely to a large number of isolated observations mentioned in various textbooks. The history of a case is typical: There is a sudden twist and the joint locks, so that it is impossible to extend the leg; after moving and wriggling the leg in various directions there is usually a sudden snap and the full power of movement is regained. Usually within a short time there is an effusion into the joint and over a short period marked tenderness and slight swelling, the tenderness being usually just inside or outside the patella. Subsequent attacks may occur the same day, the next day, or at irregular intervals. A slight cause may be sufficient to bring on an attack, such as catching the bed-clothes with a toe, stepping from a car, or stumbling on irregular ground; needless to say, this may happen at an awkward moment and serious consequences may result. Thus in one instance a severe laceration of the hand occurred due to spiking on a fence-rail in an attempt to prevent a fall; and in one instance the locking occurred in a swimming-pool following a dive into the water.

There is a considerable difference of opinion regarding treatment. The consensus seems to be that the forms of manipulation necessary to restore the joint to a normal condition cannot be definitely set forth, as the internal cartilage may be misplaced either medially or laterally. Many observers say that prolonged rest after the initial injury frequently will prevent recurrence. Others advise the wearing of an elastic knee-brace, and other methods of permanent or temporary bandaging have been recommended. It is the opinion of Martin that if the patient is a laborer, or an athlete who wishes to continue in sport, operation is advisable. When the patient finds himself permanently unable to extend the joint, operation should be performed at once. Martin has had no bad results whatever in his cases. Unfavorable results have been reported, but at most are few. The only other reports of extensive series of cases treated by operation or manipulation are from England and Germany. In this country there seems to be an aversion to operation on the knee-joint in these cases. Evidently the subject demands further attention with special reference to simple surgical treatment.

1. Martin: Lancet, London, 1912, ii, 1067.

FEVERS FOLLOWING SUBCUTANEOUS INJECTIONS

The increasing employment of the method of subcutaneous and intravenous injection for the introduction of drugs or other restorative agents into the organism has directed attention to some of the phenomena occasionally attendant on these procedures. Various investigators have observed a rise of temperature following the injection of certain solutions and have naturally associated it with the most conspicuous component of the fluid employed. The types of substances charged with this fever-producing property are by no means uniform or similar. One need merely recall the terms "water-fever," "salt-fever," "sugar-fever," "tissue-fever," applied to the pyrexia noted after introducing solutions of the products suggested by these names in an

experimental way. Intravenous infusions of saline, for example, have repeatedly been described as precursors of a febrile rise in temperature; and "salt-fever" has formed a subject of lively discussion in the pediatric literature in particular, owing to the pronounced sensitiveness of youthful individuals to the injections. At present the fever met in man after injections of sterilized saline containing salvarsan has assumed a greater prominence than has been accorded to the more largely experimental types previously referred to, owing to the unusual practical interest centered on this drug.

Last year it was suggested by Wechselmann[1] that the fever so often encountered after the use of salvarsan is due to gross bacterial infection of the saline, demonstrable just before sterilization. He insisted that the fever no longer followed injection if the salt was dissolved in freshly distilled water. A subsequent critical study of this subject at the Lister Institute of Preventive Medicine in London[2] has disclosed the interesting fact that even water or ordinary saline is not free from pyrogenetic properties after the organisms present have been destroyed by heat. Solutions made with freshly distilled water are inert in respect to temperature effects; but solutions which have harbored organisms frequently contain fever-producing substances indestructible by prolonged heating and presumably of a colloidal nature. If these observations are substantiated, they suggest that this avoidable contamination by the water used in the preparation of saline or salvarsan solutions is a more important factor in these injection fevers than has been realized.

The facts may vitiate some of the deductions drawn from previous work on the causation of fever which is the sequel to injection of a variety of substances dissolved or suspended in water. Above all they give a warning of the importance of extreme care in the preparation of all solutions for injection and of the need of a pure solvent in any event.

FACTORS CONTRIBUTING TO RECENT ADVANCES IN OUR KNOWLEDGE OF COMMUNICABLE DISEASES

Our knowledge of the etiology of infectious diseases has advanced not uniformly, but by leaps and bounds as new methods have been developed and new incentives have arisen. With the evolution of a bacteriologic technic, following the work of Pasteur and Koch, there was a rapid expansion in our knowledge of bacterial infections. The discovery that Texas fever was transmitted by the tick started extensive studies on the relation of insects to the transmission of disease. The demonstration that certain diseases are due to ultramicroscopic organisms — so-called filterable viruses — rapidly led to a study of many diseases of obscure etiology, and cleared away much of the confusion regarding them. Great epidemics have furnished an incentive for the most exhaustive study of some of our essentially epidemic diseases, as cholera, plague, influenza and meningitis.

There was a period not long ago when little was done to advance our knowledge of some of the important infectious diseases endemic throughout almost the entire civilized world. Since that time, however, greater experience in interpreting results, the training and development of men for research, the foundation and endowment of large institutions for research, such as the Rockefeller Institute, the Memorial Institute and the Hygienic Laboratory of the U. S. Public Health Service, and the adoption of new methods by research workers, have made possible the recent increase in our knowledge of this class of diseases. Certain diseases formerly thought not to be communicable have been found to belong to the infectious class. This is the case with poliomyelitis, which for years was considered to be a degenerative disease of the nervous system, and which recent researches have proved to belong among the infectious diseases. An important element, well illustrated by experimental poliomyelitis in the rabbit and in the monkey, is the recognition that a disease may present a picture clinically different in one species from what it does in another.

The use of the monkey as an experimental animal, instead of the small animals usually employed, has contributed more than any other factor to the important recent additions to our knowledge of the acute infections. Recent work has shown that the monkey is susceptible to a number of diseases which affect man but which are transmissible with difficulty, if at all, to the small laboratory animals, such as rabbits, rats and guinea-pigs; and through this new medium of experiment we have been able to reproduce these diseases at will and to study them under laboratory conditions. Without the monkey as an experimental animal our knowledge of typhus fever, poliomyelitis, measles, cerebrospinal meningitis and scarlet fever would not have made its recent great advances; indeed, it probably would have remained at a standstill for many years to come.

Another important advance was in the adoption of methods of experiment by which the infective material was brought into immediate contact with the organs or tissues of the body primarily or most seriously affected in the natural disease, as in experimental meningitis and poliomyelitis, in which the infective material is put directly into the cranial or spinal cavities. The use of special mediums or special methods of culture has contributed greatly to our knowledge of the specific cause of certain infectious diseases, such as leprosy and syphilis. A valuable method is filtration through earthenware filters by means of which contaminating organisms are removed. Future advances in our knowledge of the acute infections apparently depend to a large extent on the discovery of new methods of staining the etiologic agent, and of new methods of culture.

1. Wechselmann: Neuere Erfahrungen über intravenöser Salvarsan-Injektion ohne Reaktions-Erscheinungen, München. med. Wchnschr., July 11, 1911; Deutsch. med. Wchnschr., April 27, 1911.
2. Hort, E. C., and Penfold, W. J.: A Critical Study of Experimental Fever, Proc. Roy. Soc., London, B., 1912, lxxxv, 174.

Unfortunately the application of this knowledge to the control and eradication of the diseases has not kept pace with its acquisition. With a few notable exceptions, such as the control of yellow fever through mosquito eradication and of bubonic plague by rat campaigns, health authorities have been slow to apply the great mass of information now available to them by reason of the researches of the last few years. What at present is more needed than research is a more general application of the results already at hand. Research in our large institutions should of course be encouraged and developed; and the laity, physicians and health officers should be impressed with the importance of using the information already available. Our law-makers should also be informed that it requires money to carry out the measures for the control of disease which have been pointed out so convincingly by laboratory studies. Who can predict how many lives would be saved and how many cripples for life prevented if means were provided for fly campaigns next summer in order to carry into effect measures for the prevention of poliomyelitis by the control of the stable-fly?

Current Comment

A NEW DIAGNOSTIC TEST IN MENINGITIS

Since the introduction of the serum treatment for meningitis the necessity has arisen for definite diagnosis between meningitis caused by the meningococcus and meningitis caused by other organisms like the streptococcus, pneumococcus and tubercle bacillus, as obviously the serum treatment is effective only in those cases caused by the meningococcus. H. Vincent and other French investigators[1] have developed a test which they believe to be accurate in its differentiation between these classes of cases, and almost as simple in its application as the agglutination test in typhoid. The test is a precipitin reaction performed by adding one or two drops of an antimeningococcus serum to a tube of fresh cerebrospinal fluid which has been obtained from the patient by spinal puncture, and which has been cleared by rapid centrifugation for ten or fifteen minutes. After the serum has been added, the test tube and a control tube are incubated at 52 C. (125.6 F.) for a few hours. If the meningitis is caused by the meningococcus a definite precipitation will be present in the tube to which the serum was added and should be absent in the control tube. This test embraces no new principles, and the result is what would naturally be expected in a mixture of fluids containing antigen and antiserum under suitable conditions. Those who have tried the reaction on extended series of cases affirm that it is specific in its action and is especially valuable as a delicate test for differentiating obscure cases. Collignon and Pilod state that by means of this test they are able to differentiate accurately in that difficult class of cases in which bacterial examination of the cerebrospinal fluid fails to reveal the causative organism. Their results are verified either by post-mortem findings or by the subsequent course of the disease under serum treatment. They recommend that the serum used for this test be free from phenol or other preservative which might interfere with the reaction. Precipitin reactions occur rapidly; consequently the result, at least when positive, would be expected to become apparent promptly. Strangely enough, few reports of the application of this test have found their way into English and American literature. It is possible that our laboratory diagnosticians will find the test a valuable addition to their resources.

1. Collignon and Pilod: Presse méd., 1911, xix, 723.

NUT-GROWING AS A HOBBY

Nuts are "food for the body and food for thought. Bread, butter and beefsteak are furnished by nuts, in a nutshell, in tablet form, in sealed individual packages, water-free, concentrated and uncontaminated," says an announcement of the Northern Nut-Growers' Association,[1] which is an association primarily not for profit, organized by a number of physicians, pomologists, editors, horticulturists and some others engaged in a commercial way in the propagation of nuts, fruits and trees. Nut-growing as a hobby for physicians and others is said to have much to recommend it; most of the members of the association have taken up nut culture for the pleasure derived from the scientific propagation or improving of old and the creation of new varieties of the various edible nuts. They do not lose sight of the fact, however, that the nut industry is an important one and is deserving of greater attention on account of the food value of nuts and the profit which may be derived from them. Dr. Robert T. Morris, president of the association, who is an enthusiast on nut propagation, says that there are few acres of tillable land in the United States that will not yield a hundred dollars' worth of nuts to the acre per year with less care than would be required for almost any other crop. At present the United States imports nuts to the value of thousands of dollars, though it is known that nuts can be successfully grown in almost every state of the Union and in Canada.

FRIEDMANN'S INOCULATION AGAINST TUBERCULOSIS

In another place in this issue of THE JOURNAL,[2] and in the Berlin Letter of last week's issue,[3] reference is made to Friedmann's treatment of tuberculosis. This method of treatment does not appear to be based on any new principle. It represents simply another effort to utilize for curative and preventive purposes the antigenic substances in the tubercle bacillus, without the simultaneous introduction of any toxic or harmful substances. In order to secure this effect, living bacilli, devoid of virulence and invasiveness, so it is asserted, are injected intramuscularly. These bacilli are said to be derived from the turtle, but the method by which they are deprived of virulence is withheld. This secrecy is not in accord with the ethical standard of scientific medi-

1. Dr. W. C. Deming, 2563 St. Raymond Avenue, New York City, is secretary of the association.
2. Friedmann, F. F.: Inoculation Against Tuberculosis, Berl. klin. Wchnschr., Nov. 11, 1912, p. 2214; abstr. in THE JOURNAL A. M. A., Dec. 14, 1912, p. 2192.
3. Berlin Letter, THE JOURNAL A. M. A., Dec. 7, 1912, p. 2081.

cine. The report as to the results of the practical use of this carefully guarded secret shows, first, that in the experiments on guinea-pigs complete protection has not been obtained. Indeed, it is doubtful whether the protection obtained is any greater than that obtained by the injection of killed bacilli. Furthermore, there are no indications that it has been possible to cure tuberculous guinea-pigs by means of the bacilli rendered avirulent by a secret method. The treatment consequently lacks an unassailable experimental basis — a really and promptly effective cure for tuberculosis is expected to cure tuberculosis in guinea-pigs and other animals. The injections so far made by Friedmann in children seem to indicate that the bacilli as injected are harmless in children, and that is all. We have no evidence that the injections will prevent tuberculosis in children, and from the nature of the case it will be exceedingly difficult to determine what the effect of such injections really is. In the second place the alleged curative effects do not seem to be any more pronounced and definite than those obtained with the various forms of tuberculin when properly used. The remarks made in the discussion following the reading of Friedmann's paper before the Berlin Medical Society clearly substantiate this statement. Finally we come to the possible dangers of the treatment, to which Citron refers, namely, reversion to virulence on the part of the bacilli. This possibility must be reckoned with and constitutes a serious detriment to the method, no matter what its real virtue may be, if it has any. Its apparent harmlessness in children so far is counterbalanced by this possible danger. In view of these considerations there is not sufficient warrant for any other attitude toward Friedmann's treatment of tuberculosis than one of critical neutrality and judicious skepticism; for it concerns an essentially secret procedure without adequate experimental basis and without any better results to its credit than produced by tuberculin properly used.

RESPONSIBILITY OF THE NEWSPAPER

Newspaper sensationalism has seldom equaled the announcement, which appeared in a certain group of newspapers last week, of Friedmann's "cure," mentioned above. A syndicate letter, in the form of a cable from Berlin, and written by William G. Shepherd, announced without equivocation the discovery of a positive cure in Friedmann's serum (which, by the way, is not a serum). The matter was emphasized, however, in an unusual manner, in the form of a bracketed so-called "editor's note," introducing the article:

EDITOR'S NOTE.—This exclusive cable from the *Press* [*Post, News, Herald*] staff correspondent in Europe is of TREMENDOUS importance. We print it with every confidence in its truth—a wonderful, glorious truth for hundreds of thousands of tuberculosis sufferers in America. We believe it is the greatest piece of news printed in any paper in many years. Shepherd is a trained investigator of long experience. His attitude toward things is distinctly skeptical—Missourian. He delights in exposing fakes and quacks. That he sends this cable is proof of a most careful investigation of Dr. Friedmann and his cure. He promises us a fuller report by the first mail steamer.

With practically no modification, except the introduction of the name of the particular newspaper using it, this note appeared in the various newspapers in the syndicate. Nearly all had big display headings, some running across the entire page. The Cincinnati *Post* outdid any other in this regard. Running across the page was the two-line legend, "Cure for Tuberculosis is New Certain. Post Investigates Claims of Great German Scientist and Finds They Are Well Founded." It emphasizes the "editor's note":

"Two weeks ago the press association carried a brief despatch from Berlin, declaring that a noted scientist there had at last discovered the long-sought cure for tuberculosis. The *Post* at once sent William G. Shepherd, its European correspondent, to interview the discoverer and to ascertain the exact truth," etc.

Evidently the readers of this newspaper were impressed with its tremendous enterprise. Of course the newspapers did not realize how they were being worked, and yet they might have taken a hint from this, quoted from Shepherd's letter:

"'When will you send the serum to the United States?'

"'I cannot tell. For the present I intend to treat all cases here in Berlin personally. I cannot send the serum abroad indiscriminately, for it might get into irresponsible hands.'

"The truth of the matter is that Dr. Friedmann is trying to sift out one reliable offer for the American rights from a flood of telegraphic proposals from the United States, and the doctor hesitates to discuss the question of American rights over the cable. Representatives of several American interests will shortly be in Berlin to lay offers before the doctor personally, and the chances are that the cure will be in the United States before many months."

The serious phase of such sensational announcements, however, is their cruelty. Had these newspapers realized that the hopes of practically every consumptive in the United States would be aroused by this announcement, they certainly would have modified at least the "editor's note," which was so adroitly offered them in connection with the letter. It is characteristic of human nature in general to put trust in anything that seemingly offers help in an otherwise hopeless condition. It is again the case of the drowning man and the straw. This is particularly true of those wretched human beings who are afflicted with tuberculosis. To exploit in so sensational a manner even the most apparently promising cure without the confirmation of time and the judgment of those most competent to judge, is an absolute and indefensible refinement of cruelty. It is almost unnecessary to state that, as mentioned in the preceding comment, there has been no scientific evidence which would justify even a careless press in heralding this so-called consumption cure in such an extravagant manner. The Grand Rapids *Evening Press* is the only newspaper, so far as we have seen, that recognized its responsibility in this respect. It modified the "editor's note" as follows:

"Once again it is announced that a positive cure for tuberculosis has been discovered. . . . Similar announcements have been made before, and the 'cure' under extended observation has always failed. . . . The *Evening Press* gives this report for what it is worth . . . but is itself skeptical and considers that faith should not be pinned to it until it has been demonstrated by reputable doctors in America.—EDITOR."

What a pity that other newspapers could not have appreciated their responsibility as did this editor!

AN ABUSE OF THE CHRISTMAS SEAL

The promoters of the so-called "William McKinley Memorial Hospital League" are apparently seeking to take advantage of the Christmas spirit and the popularity of similar efforts by other organizations to increase their funds. During the past week physicians and others have been receiving a circular letter from this "league" and a book of stamps, for which the recipient is asked to send one dollar. The two objects of the organization, as stated in its announcement, are to erect a non-sectarian hospital in New York, and to establish branches for the treatment and cure of tuberculosis in the various states. Neither of these objects seems to require such an organization. There are certainly hospitals enough in New York to take care of all those needing such services, while the National Association for the Study and Prevention of Tuberculosis with its branches and affiliated societies amply covers the ground as far as tuberculosis is concerned. The letter-heads of this organization show an imposing list of names, principally governors, as forming "The Council of One Hundred." We are informed that Governor Dix of New York and Governor Deneen of Illinois have withdrawn their permission to use their names in connection with this organization. We are also informed that the William McKinley Memorial Hospital League has no connection with the National Association for the Study and Prevention of Tuberculosis.

LIGHT AND DRUGS

Although it is recognized that light may exercise a variety of subtle influences, these can usually be expressed only in terms of vague generalization and have rarely found any adequate explanation. Most of the organic compounds which occur in nature are of themselves not sensitive to light; this applies likewise to the majority of synthetic products, among which are included modern drugs. Professor Neuberg[1] of Berlin has called attention to the remarkable fact that nearly all types of organic compounds acquire a pronounced photosensitiveness when they are mixed with certain inorganic compounds. Iron salts, for instance, provoke this effect most strikingly; and the phenomena of change induced by the presence of such sensitizing substances fail to evince themselves so long as the solutions containing them are kept in the dark. It will be apparent that the greatly enhanced sensitiveness to light which is thus produced by the presence of small amounts of mineral constituents may assume an important biologic significance. These inorganic components may determine the peculiar responses of the living organism on exposure to light. Neuberg has even remarked that the ingestion of mineral waters as it is practiced in many resorts may in ultimate analysis resolve itself into a form of light therapy. Without granting such a far-fetched explanation of the supposed response often experienced in the widely heralded mineral water "cures," we may direct attention to another more immediate aspect of the effect of light. Many of the familiar drug preparations represent combinations of organic compounds and metallic elements. Thus there is liquor ferri oxydati saccharati, among many other pharmaceutical products commonly preserved in solution by pharmacists, physicians and patients. Neuberg and Schewket[2] have examined the behavior of representative products toward light. Even within twenty-four hours changes can be detected as evidenced by the development of organic derivatives such as aldehyds, ketones and products of hydrolysis. In contrast with their precursors in the solutions, for example, sugars or organic acids, some of these secondary derivatives are characterized by a pronounced pharmacologic activity. The obvious lesson from the unsuspected outcome of this investigation is that organic pharmaceutical preparations containing metallic components should be preserved in dry form if possible rather than in solution; in any event they should be kept in dark containers and protected against light, and the preparation of fresh solutions encouraged as far as possible.

1. Neuberg, C.: Biochem. Ztschr., 1908, xiii, 305; 1910, xxvii, 271; xxix, 279.

2. Neuberg, C., and Schewket, O.: Veränderung einiger Arzneimittel im Licht, Biochem. Ztschr., 1912, xliv, 495.

SCIENCE AN ICONOCLAST

We recently commented on the part imagination has played in scientific advancement.[1] Instances were quoted in which the metaphors of early writers have become established as facts by science. Sometimes the foreshadowing may seem almost prophetic; no doubt it is often mere accident. Science hews to the line no matter where the chips may fall. Often an idol of the earlier epochs of thought is shattered. Thus we sought to avoid "colds" by avoiding all contact with cool fresh air. Now, he who seeks to avoid infection of the respiratory tract wears light clothing and breathes air fresh from the open. A generation ago calomel was given to stir up the liver and increase the flow of bile. Now pharmacologists agree that whatever virtues calomel may possess it is not a cholagogue. When we were boys candy and sweets were withheld from us as things productive of many serious derangements. Now pediatricians allow plenty of sweets as an essential part of the diet for children. Not long ago we were taught to avoid drinking water with meals, as the excess of fluid diluted the digestive juices and hindered digestion. Now it seems to have been demonstrated that water taken with meals aids digestion and facilitates absorption. And so it goes.

1. Imagination in Science and Medicine, editorial, THE JOURNAL A. M. A., Sept. 28, 1912, p. 1195.

THE CHRISTMAS RED CROSS SEAL

The Red Cross seal of the National Association for the Study and Prevention of Tuberculosis has become a recognized part of the Christmas season. Originally used in 1862 to raise funds for the use of a soldiers' relief committee in Boston, the Red Cross seal was first used for antituberculosis work in 1907 by the Delaware Antituberculosis Association. In 1908 the American Red Cross issued the first national Red Cross tuberculosis stamp, from the sale of which about $135,000 was realized. In 1909 this amount was almost doubled. In

1910 $310,000 worth were sold, and in 1911 $334,260 worth were bought and placed on Christmas packages. The sale this year promises to exceed previous records. The American people have adopted the Red Cross seal as a part of their holiday festivities, and an increasingly large number of letters and packages bear this little stamp as evidence of the unselfish and brotherly love of the Christmas spirit. The cost to any one is slight, but the total amounts realized are large and are of great assistance to the Association in the prosecution of its antituberculosis work.

Medical News

ALABAMA

New Officers.—Lauderdale County Medical Society at Florence, December 3: president, Dr. L. W. Desprez; secretary-treasurer, Dr. R. M. Davis, both of Florence.——Etowah County Medical Society at Gadsden, December 4: president, Dr. A. W. Ralls; secretary, Dr. M. P. Hughes, both of Gadsden.——Madison County Medical Society at Huntsville, December 2: president, Dr. James F. Burnam; secretary-treasurer, Dr. Edgar Rand, both of Huntsville.——Jefferson County Medical Society at Birmingham, December 2: president, Dr. Henry Silas Ward, Birmingham.

Personal.—Drs. J. C. O'Gwynn and W. C. Jones, both of Mobile, have returned from Europe.——Dr. J. E. Leach, Gadsden, while making a professional call, November 27, was attacked and beaten.——Dr. W. S. Haddox, Arnold, was shot from ambush recently but is expected to recover.——Dr. Earle Drennan, Birmingham, has been appointed division surgeon for the Mobile and Ohio Railroad.——Dr. Thomas Hughes, Russellville, fractured his left leg and sustained other serious injuries in a runaway accident, near Franklin, recently.——Dr. C. W. Wright, Fort Payne, was operated on in Chattanooga, Tenn., recently.——Dr. R. A. Burns has been elected mayor of Alabama City.

GEORGIA

Clinic for Crippled Children.—A free clinic for crippled children has been established at the Grady Hospital, Atlanta, and the hospital appeals for funds for the maintenance of the clinic and for the employment of a suitable person to give systematic and scientific exercise.

New Officers.—Third District Medical Association, twelfth semiannual meeting at Cordele, November 20: president, Dr. C. H. Richardson, Montezuma; secretary-treasurer, Dr. Charles A. Greer, Oglethorpe. Fort Valley is the next place of meeting.——Eleventh District Medical Association at Waycross, November 19: president, Dr. Adrian Dallas Williams, Folkston; secretary-treasurer, Dr. J. T. Carswell, Waycross. Next meeting at St. Simons Island in June.——Sixth District Medical Society at Macon, November 13: president, Dr. I. M. Anderson, Barnesville; secretary, Dr. J. H. Adams, Macon (reelected).

ILLINOIS

Epidemic Disease.—Diphtheria is said to have again broken out at Pana and at Dunkel, 5 miles north.——Dr. Charles F. McClure, health commissioner of La Grange, has ordered the closure of the schools of the village for one week on account of the prevalence of scarlet fever.

New Officers.—Illinois State Association for the Prevention of Tuberculosis, at Chicago, December 3: president, Dr. W. A. Evans, Chicago; vice-presidents, Drs. T. O. Hardesty, Jacksonville, and George T. Palmer, Springfield.——Streator Medical Society, November 26: president, Dr. A. N. McCord; secretary, Dr. J. E. Clark.——North Central Illinois Medical Association, thirty-ninth annual meeting at Pontiac, December 3: president, Dr. Ezra T. Goble, Earlville; secretary-treasurer, Dr. George A. Dicus, Streator (reelected). La Salle was selected as the next meeting place.

Personal.—Dr. Frank H. Jenks, superintendent of the Ransom Sanitarium, Rockford, formerly chief-of-staff of the Elgin State Hospital, is reported to be critically ill with heart disease in the Presbyterian Hospital, Chicago.——Dr. William H. Ludewig, Rock Island, was the guest of honor at a dinner given by physicians of the city, December 3. Dr. J. R. Hollowbush was toastmaster and the guest of honor was presented with a silver loving-cup, suitably inscribed, the presentation speech being made by Dr. G. L. Eyster.——Dr. William Patch, Coleta, has been adjudged insane and committed to the Watertown State Hospital.——Dr. J. B. Shawgo, Quincy, has been adjudged insane and committed to the Jacksonville State Hospital.——Dr. F. J. Parkhurst, Danvers, who has been seriously ill, has completely recovered.

Chicago

Sanitarium to be Started.—Ground will soon be broken for the erection of a home for advanced cases of tuberculosis at Belmont and North Fiftieth avenues by the Jewish Consumptive Relief Association of Chicago. The new building is to cost about $75,000.

Changes in Medical Superintendency of the Kenilworth Sanitarium.—Dr. H. W. Powers has resigned as medical superintendent of the Kenilworth Sanitarium, and is succeeded by Dr. Sherman Brown, formerly assistant physician of the Kings Park State Hospital, New York.

Personal.—Dr. L. R. McBurney was cut by broken glass and bruised in a collision between an automobile ambulance and a street car, December 4.——Dr. W. A. Evans has been elected vice-president of the Progressive Club of Chicago.——E. Sherman, chief of the food bureau of the Health Department, who has been absent on account of ill health for several months, has returned, recovered.

INDIANA

Non-Residents Excluded.—A resolution was passed by the city board of health of Indianapolis, November 8, excluding all patients not residents of the city from the hospital. Exceptions to this rule will be made only in cases of emergency.

Personal.—Dr. J. E. Hiatt, New Castle, has been elected coroner of Henry County.——Dr. James V. Nelson and wife, Logansport, sailed for Europe, November 29.——Dr. C. C. Wert, Kingman, has been appointed health officer of Fountain County, vice Dr. J. R. Hicks, Covington, resigned.——Dr. David S. Wiggins, New Castle, has been elected president of the newly organized Henry County Branch of the Indiana Association for the Study and Prevention of Tuberculosis.——Dr. O. V. Schumann, Columbia City, has been elected president of the Whitley County branch of the same organization.

Hospital News.—Work began November 8 on the new St. Francis Hospital, Beach Grove. The building will cost $200,000 and will have a capacity of one hundred beds.——St. Joseph County has appropriated $15,000 for the erection of a new tuberculosis camp capable of accommodating fifty patients. Plans for the construction of the camp are now being considered.——The new hospital for the insane, Woodmere, Evansville, recently completed at a cost of $85,000, was opened for inspection by the public, November 15.——Rensselaer Hospital has been incorporated by Drs. Ed. N. Loy, Ira M. Washburn, Merle D. Gwin and others, with a capital stock of $2,000.——The campaign for raising money for the Union Hospital, Terre Haute, commenced November 11. The city was divided into twenty districts and the solicitors made a systematic house-to-house canvass for money for the hospital.

KENTUCKY

Personal.—Dr. O. R. Kidd has resigned as a member of the Board of Public Works of Paducah.——Dr. E. C. Roemele, Frankfort, who was injured in a collision on the Versailles pike, December 23, is reported to be improving.——Dr. A. J. Clements, Glasgow, was adjudged insane, November 15, and committed to the Lakeland State Hospital.

Syphilis in Penitentiary.—The Board of Prison Commissioners of Kentucky states that fully 20 per cent. of the convicts in the state penitentiaries are afflicted with syphilis. At present there are 100 men in the prisons who need immediate attention in this respect. The prison physicians have done everything in their power to ameliorate the condition of the men suffering from this disease. As the state provides only one physician at each prison, it is likely that an arrangement will be made with the Medical Department of the University of Louisville to send one of its honor men to each prison to assist the resident physician in this work.

Honor Paid Dr. Lackey.—A luncheon was given by the Trigg County Medical Society, November 22, in honor of Dr. J. H.

Lackey, Canton, who was a member of the legislature which passed the act granting $30,000 to the State Board of Health and to whom credit is given by the secretary of the State Board for its passage. Dr. Homer Blane, Cadiz, the president of the society, acted as toastmaster and many communications from friends of Dr. Lackey were read. Dr. J. W. Crenshaw responded to the toast, "Dr. Lackey, as the Public Do Not Know Him," in which he paid eloquent tribute to the noble work of the beloved country doctor and expressed the regret of his colleagues at Dr. Lackey's change of residence to Nashville. Dr. Lackey made a suitable response.

LOUISIANA

Leper in Winnfield.—A Mexican, who has been in Winnfield for a month or two, has been discovered to be a leper, and has been sent to New Orleans to be treated there or placed in the lepers' home.

The Hebert Case.—The sheriff of Lafayette Parish has arranged to place a guard over the home of Hebert the insane leper at Lafayette, who recently escaped from the State Leper's Home.

Isolation Ward Needed.—Dr. Joseph A. Dana, house surgeon of the Charity Hospital, New Orleans, strongly recommends the erection of an isolation hospital for the treatment of contagious and infectious diseases.

Sanatorium Opened.—Crowley Sanitarium, which has been in course of construction for several months, is practically completed and will soon be opened. The officers of the institution are Dr. E. M. Ellis, president; Dr. D. D. Mims, vice-president, and Dr. R. B. Raney, secretary-treasurer.

Tuberculosis Cottage Dedicated.—New Orleans Typographical Union No. 17 dedicated a cottage at Camp Hygeia, the colony of the New Orleans Antituberculosis League in St. Tammany Parish, October 27. The cottage has two rooms, has been completely furnished and screened and is ready for occupancy.

The State Board's Thanksgiving.—Dr. Oscar Dowling, president of the State Board of Health, promulgates the following as the Thanksgiving proclamation of the board:

> For the constantly increasing public interest in subjects akin to sanitation and preventive medicine; for the loyal support as a whole of the medical profession of the state; for the almost unanimous cooperation of the public health officials, national and local, and last but not least, for the good will of the united press, the Louisiana State Board of Health offers its most sincere thanks.

Personal.—Dr. E. M. Hummel, New Orleans, suffered a fractured rib and lacerations of the scalp in a collision between his automobile and a trolley car, December 1.——Dr. W. T. O'Reilly, New Orleans, has been made superintendent of public health.——Dr. Chaille Jameson, head of the laboratory demonstration work of the New Orleans Tropical School of Medicine, has returned from Port Limon, Costa Rica, where he installed a laboratory for the United Fruit Company.——Dr. Oscar Dowling has been reappointed president and a member of the State Board of Health to succeed himself.——Dr. G. C. McKinney, Doyle, has been appointed a member of the State Hookworm Commission.——Dr. J. D. Fulton has succeeded Dr. J. W. K. Shaw as city health officer of New Iberia and coroner of Iberia Parish.——Dr. Charles V. Unsworth, New Orleans, has been appointed physician in charge of the Louisiana Retreat, vice Dr. St. Mark Fortier, deceased.

MARYLAND

Public Health Lectures.—Dr. William W. Hobson, on behalf of the Medical and Chirurgical Faculty of Maryland, is making arrangements throughout the Eastern Shore for a series of public health lectures.

Baltimore

New Officers.—Baltimore City Medical Association, December 3: president, Dr. Harry Friedenwald; secretary, Dr. Emil Novak.

Nurses' Home Opened.—The Hecht Memorial Nurses' Home at the Hebrew Hospital was opened December 1. The building is three stories and a basement in height and has accommodation for sixty nurses.

Increased Appropriation for Health Department.—The Board of Estimates has made an appropriation for the health department for the coming year amounting to $218,415, an increase of $15,310 over the appropriation for 1912

Small-Pox.—During the recent outbreak of small-pox there were five cases which were sent to quarantine. Vaccination was done very generally in the affected section and thirteen who had been subjected to the disease were isolated. The disease was said to have been brought to Baltimore by a negro from Cumberland, and all of the patients are negroes.

Personal.—Dr. L. McLane Tiffany was operated on at the Union Protestant Hospital, December 2.——Dr. Thomas R. Brown, who has just returned from Europe, has been placed in charge of the clinic on digestive diseases at the Johns Hopkins Hospital.——Dr. Lloyd P. Shippen inherits $1,000 under the will of the late Dr. Richard A. Cleeman, Philadelphia.

MASSACHUSETTS

Reorganization of Staff.—The department of general surgery in the Boston Dispensary has been reorganized and placed under the charge of Drs. Benjamin Tenney and John Homans, each to be on duty for six months. Dr. Frederick M. Briggs has been appointed consulting surgeon and Drs. Robert H. Vose, Theodore C. Beebe, Henry M. Chase and Henry D. Lloyd have been made assistant surgeons in charge of the genito-urinary department.

Personal.—Dr. Charles F. Whitney, Boston, has been appointed assistant professor of physiological chemistry in the University of Vermont, Burlington, vice Dr. C. F. Dalton, who has been appointed secretary of the State Board of Health.——Drs. William E. Synan and J. N. Landry have been elected members of the school committee of Fall River.——Dr. John F. Croston has been elected a member of the school committee of Haverhill.——Dr. O. W. Roberts has been elected first vice-president and Dr. A. C. Eastman a director of the Springfield Baby Feeding Association.——Dr. W. J. Collins has been elected chairman and Dr. J. E. Hayes a member of the executive committee of the Northampton Antituberculosis Society.

MICHIGAN

Personal.—Dr. Gordon H. Yeo, resident physician at the Calumet & Hecla Hospital, Calumet, has gone to the Isthmian Canal Zone.——Dr. Emory J. Brady, a member of the staff of the Kalamazoo State Hospital, has been appointed assistant superintendent of the Newberry State Hospital in the Upper Peninsula.

Items About Hospitals.—The Woodward Hospital has been established at 821 Woodward Avenue, Detroit, with accommodation for forty patients. The institution is intended as an emergency hospital, and its clientele will be largely from the employees of large manufacturing establishments.——Westside Hospital, Bay City, was formally opened November 3.——Work commenced November 1 on the addition to Nichols Hospital, Battle Creek, which is to be four stories in height, of steel, brick and cement construction and to cost $35,000.——Sparrow Hospital, Lansing, was opened to the public, October 27.——The supervisors of Shiawassee County have taken steps to provide a county hospital for the care of contagious diseases.——The western annex of the Detroit Tuberculosis Sanatorium is completed and ready to receive patients. The annex increases the capacity of the institution from twenty to thirty patients.

MINNESOTA

Sanatorium Burned.—The main building of the Pokegama Tuberculosis Sanatorium, Pine City, was burned November 2, with a loss of about $5,000.

State Inebriate Farm Soon to Open.—About the middle of this month the State Farm for Inebriates, Wilmar, will be opened.——Dr. G. H. Freeman, assistant superintendent of the St. Peter State Hospital, has already assumed his duties at the State Farm.

State Board Report.—The annual report of the State Board of Health shows a marked decrease in the deaths of children under five years of age. In 1910, 1,799 deaths were reported and in 1911, 1,092. Typhoid shows a decrease from 688 to 294, diphtheria from 566 to 335, scarlet fever from 284 to 190 and poliomyelitis from 201 to 54. The two chief causes of death were tuberculosis and pneumonia.

Reasons for Vaccination.—Dr. P. M. Hall, health commissioner of Minneapolis, thus crystallizes his reasons for vaccination in Minneapolis:

> Past experiences of the Minneapolis health department with small-pox.
>
> Present conditions in Eastern cities where an unusually large percentage of cases is of the malignant type.
>
> Danger of a patient suffering with small-pox in the severe form being shipped into Minneapolis, because of the general reputation of the city for having facilities and properly caring for the disease.

MONTANA

State Should Purchase Insane Asylum.—The Silver Bow Medical Society at its meeting, October 23, in Anaconda, unanimously voted in favor of the state purchase of the insane asylum and grounds at Warm Springs.

Outbreak of Typhoid Fever.—An outbreak of typhoid fever is reported at Malta in the Milk River Valley, where fourteen cases exist. Dr. Thomas D. Tuttle, Helena, secretary of the State Board of Health, who has investigated the situation, states that the outbreak is due to the contaminated water of wells in the town.

Personal.—Dr. F. D. Pease has been appointed city physician of Missoula.——Dr. A. L. Martinallo, Butte, has started for Italy.——Dr. and Mrs. John B. Shaw, Terry, who were seriously injured in a runaway accident, recently, are reported to be convalescent.——Dr. J. P. Aylen, chief surgeon of the Northern Pacific Hospital, Missoula, has resigned and moved to Fargo, N. Dak.——Dr. and Mrs. Frederick M. Poindexter, Dillon, sailed for Europe, November 28.

NEBRASKA

Society Changes Its Name.—The local medical society, organized a year ago in Omaha, has adopted the name, the Omaha Academy of Medicine and Surgery.

New Officers.—Republican Valley Medical Association at Oxford, November 1: president, Dr. Henry Farrell, Axton; secretary, Dr. P. A. Sundbury, Holdrege (reelected).——Dundy-Hitchcock-Chase-Hays County Medical Association at Wauneta: president, Dr. W. E. Stewart, Stratton (reelected).——Boone County Medical Association at St. Edward, November 21: president, Dr. Ernest Thelen, Cedar Rapids; secretary-treasurer, Dr. G. W. Sullivan, St. Edward.

Hospital Notes.—Dr. John Buis, Pender, has built and is operating a private hospital for surgical and noncontagious medical cases with accommodation for ten patients.——The directors of the McCook Cooperative Hospital Association have completed the first payment on the building recently purchased by them for hospital purposes.——The new Contagious Disease Hospital, Omaha, made possible by the gift of a house at Tenth and Douglas Streets by the late Anna Wilson, opened to receive patients November 7. The building has thirty-three rooms and has two distinct sections, one for scarlet fever and one for diphtheria.

NEW YORK

Convalescent Home for Buffalo.—Mrs. Frank H. Goodyear has purchased eighty acres of land in Williamsville, on which she will build the Josephine Goodyear Memorial Home for Convalescent Children. The home will be constructed on the cottage plan, will be undenominational and accessible for convalescent children from any Buffalo hospital or home.

Dispensary Leases College Building.—Instead of opening a separate dispensary, it is reported, Syracuse University College of Medicine has leased its new dispensary building to the Syracuse Free Dispensary, in consideration of having its faculty members serve on the staff of that institution. The new dispensary building, which was planned with much care, is now rapidly approaching completion.

Opposes Death Penalty.—The State Superintendent of Prisons, since the release of Albert T. Patrick, is reaffirming his contention of last winter that capital punishment should be abolished. He believes that the ends of justice would be served by a sentence of from twenty-five years to life and states that there is not a man in the prisons of this state who has served a term of twenty-five years. He also recommends a board of pardons to have the power of recommendation, leaving the governor the power of granting pardons.

New Officers.—Queens-Nassau Medical Society, November 26: president, Dr. W. G. Frey, Long Island City; secretary-treasurer, Dr. James S. Cooley, Mineola.——Clinton County Medical Society, at Plattsburg, November 19: president, Dr. M. D. Briggs, Champlain; secretary, Dr. T. A. Rogers, Plattsburg.——Medical Society of the County of Westchester, at White Plains, November 20: president, Dr. E. W. Weber, White Plains; secretary, Dr. W. S. Woodruff, Mount Vernon.

Personal.—Dr. O. H. Babbitt, Auburn, has been reelected jail physician and Dr. William E. Walsh, Auburn, coroner's physician for Auburn, Dr. J. H. Whitbeck, Cayuga, has been elected coroner's physician for the southern part of Cayuga County, and Dr. A. D. Stewart, Port Bryon, to a similar position for the northern section of the county.——Dr. Jack Killen, Binghamton, to avoid running down a foot passenger, steered his automobile into a telegraph pole and was thrown to the ground, sustaining serious injuries.——Dr. William A. Binz, state bacteriologist, has established a temporary laboratory in St. Johnsville, where he will take cultures from the pupils of the schools and factory employees in an endeavor to ascertain the cause and the carriers of diphtheria, which has been so prevalent in the village.

New York City

Hospital Moves.—The Hospital for the Ruptured and Crippled has moved to its new $1,000,000 building on Forty-Second Street east of Second Avenue.

Personal.—Dr. William Seaman Bainbridge has been appointed consulting surgeon to the Tarrytown Hospital, Tarrytown, N. Y.——Dr. Joseph J. O'Connell, health officer of the port of New York, has sailed for Panama.——Dr. J. Bion Bogart, Brooklyn, who has been seriously ill with septicemia due to an operation wound, is reported to be out of danger.

New Officers.—Medical Society of the County of New York, 107th annual meeting, November 25: president, Dr. Brooks H. Wells; secretary, Dr. John Van Doren Young.——German Medical Society, December 2: president, Dr. Gustav Seeligmann; secretary, Dr. Martin Rehling.——New York Academy of Medicine, December 5: president, Dr. William L. Polk; recording secretary, Dr. Charles F. Adams; corresponding secretary, Dr. Egbert Le Fevre.——Third Ward of Queens Borough Medical Association, Dr. Charles E. Strong, Long Island City, temporary chairman; Dr. E. P. Lawrence, Flushing, temporary secretary.

New Hospital Bulletin.—The Woman's Hospital, situated at Cathedral Parkway and One Hundred and Tenth Street, has commenced issuing a bulletin for free distribution among those who are interested in gynecology. The scientific articles are contributed by the surgical staff connected with the hospital and based on work done in the hospital and laboratory. This laboratory is finely equipped and a salaried pathologist is employed who gives his entire time to the work; opportunity is afforded for the investigation of the most intricate problems. Dr. J. Riddle Goffe is the managing editor of the new publication, which will appear occasionally.

Mayor Blamed for Increase in Street Accidents.—The National Highways Protective Society blames Mayor Gaynor for an increase in the number of street accidents, attributing this increase to the mayor's order forbidding police to arrest drivers or motormen in automobile or street car accidents unless there is evidence that would support a charge of manslaughter or negligence. There were during the month of November, 1912, 223 accidents, 56 of which were fatal, against 174 accidents with 15 fatalities for the month of November, 1911. Throughout the entire state automobiles severely injured 106, trolley cars ran down 29, and wagons 18.

Protests Against Budget Cuts.—In making up the budget for 1913 the Board of Aldermen have cut the appropriations of the Board of Education $229,790, the Board of Health, $100,000 and the Department of Charities, Bellevue and the Allied Hospitals, $16,514. Nine medical inspectors and eight supervising nurses have been dropped, leaving 81,000 parochial school children without medical inspection and of these 32,000 will not have even the attention of a supervising nurse. Dr. Ira S. Wile, who was recently appointed to the Board of Education, is making a vigorous protest against this policy; the New York Milk Committee, through its Committee on the Reduction of Infant Mortality, of which Mrs. J. Borden Harriman is chairman, is up in arms because the work of the milk stations will be crippled by the cutting off of the allowance to the Division of Child Hygiene, which would have made possible an expansion of their work. The State Board of Charities is also urging on the mayor the necessity of vetoing the action of the aldermen. A joint letter has also been sent to the mayor by Comptroller Prendergast, President Mitchell of the Board of Aldermen and Borough President McAneny begging him to veto these cuts and others affecting the social welfare of the people.

New Cocain Law Urged.—As a result of the recent investigation into the sales of cocain in this city many revelations have been made. It has been shown that cocain can be very easily obtained throughout the city, that Manhattan is a distributing station for New Jersey and that the drug may be obtained in Sing Sing prison and in the Tombs. As a result of these findings, Judge Swann of the General Sessions, who has been dealing with the cases convicted under the present law, finds this law very inadequate. Although the law as passed in 1907 and amended in 1910 makes the sale of cocain, except as provided for, a felony, punishment is limited to a sentence of one year and a fine of $1,000. Other felonies are punishable by imprisonment for at least five years. Judge Swann would

amend the law so that the mere possession of the drug would be considered a misdemeanor, punishable by a fine of $1,000 or one year in the penitentiary, while the actual sale of cocain should be punishable by imprisonment for at least five years. Efforts to have such a law passed at the coming legislature will be made.——A renewed effort is being made to suppress the sale of opium and cocain in the new Tenderloin. Thus far, convictions have been secured against seven places.——It has been discovered that cocain is being sold to a considerable extent to the negroes of the west side.

NORTH CAROLINA

New Officers.—High Point Academy of Medicine: president, Dr. G. F. Duncan; secretary-treasurer, Dr. S. S. Coe, Aurora.

New Hospital.—The Mercer Hospital Association of Durham has been chartered with an authorized capital of $100,000. The incorporators propose to erect a new general hospital in the city. Dr. C. A. Adams is one of the prime movers in the enterprise.

Vital Statistics Law.—The State Board of Health, the Medical Society of the State of North Carolina and the medical profession in general, are actively developing public sentiment toward the securing of a vital statistics law for the state at the next session of the legislature, and it is believed that an educated public sentiment will secure the passage of the law.

Portrait to be Presented to State Library.—Drs. J. Howell Way, Waynesville, H. T. Bahnson, Winston-Salem, and R. H. Lewis, Raleigh, the committee appointed by the Medical Society of the State of North Carolina to have prepared a life-size oil portrait of the late Dr. P. L. Murphy, Morganton, for presentation to the state library, have had the portrait painted and the presentation will take place in the state capitol at a time to be announced later.

Opportunity for Study of Tuberculosis.—The superintendent of the State Sanatorium for the Treatment of Tuberculosis, Montrose, is arranging a schedule of clinical and pathologic studies in tuberculosis for the benefit of physicians of the state, the course to be given at the sanatorium, later in the winter. Especial stress will be laid on the diagnosis of tuberculosis and efforts will also be made to send incipient cases early to the institution.

Personal.—Dr. Joseph Akerman, Wilmington, has succeeded Dr. C. D. Bell, Wilmington, as coroner of New Hanover County. ——Dr. Lyle S. Booker, Durham, announces that after December 1, he will limit his practice to surgery.——Dr. Albert Anderson, Raleigh, has been appointed a trustee of the Rainey Library.——Dr. M. R. Gibson, who has been taking postgraduate studies in Baltimore, has returned to his home in Maxton where he will confine his practice to the diseases of the eye, ear, nose and throat.

PENNSYLVANIA

New Officers.—Somerset County Medical Society, at Rockwood, October 15: president, Dr. Bruce Lichty; secretary, Dr. H. C. McKinley, both of Meyersdale.——Blair County Medical Society at Altoona, November 26: president, Dr. W. L. Lowrie, Tyrone; secretary, Dr. Charles F. McBurney, Altoona.

Hospital Notes.—Fire in the children's building of the Epileptic Colony Farm, Oakbourne, November 20, caused damages amounting to $35,000. The twenty-three inmates were roused and removed without panic or casualty.——In honor of the man who was instrumental in securing a hospital for Scranton, the officers and directors of the Taylor Hospital propose to change the name of the institution to the Edward James Memorial Hospital.——The new addition to the Miners' Hospital, Spangler, will be ready to receive patients, November 1. The building will accommodate twenty-eight patients which will increase the capacity to sixty-two beds.

Personal.—Dr. P. O. Bleiler, Allentown, is reported to be seriously ill.——Dr. Robert S. Patten, Danville, while endeavoring to cross a railroad crossing in that city, was struck by a locomotive and seriously injured, December 1.——Dr. S. F. Earnest, Hummelstown, who has been under treatment in Harrisburg Hospital, has been brought home.——Dr. Raymond B. Mixsell, Easton, has moved to Pasadena, and has been appointed clinical instructor of diseases of children in the Medical Department of the University of Southern California, Los Angeles.——Dr. A. H. Eggers, Pittsburgh, has been appointed medical superintendent of the Augusta (Ga.) hospitals and will reside at the City Hospital.

Epidemic Disease.—A total of thirty-one cases of typhoid fever with three deaths was reported to the State Health Department from Elizabethville in Lykens Valley up to December 5.——The epidemic of typhoid at Yeagertown still progresses and five new cases were reported on December 5. Analysis of the milk and water failed to show source of infection and it is thought that the Kishacoquilla Creek, practically a sewer ditch, is the cause of the outbreak, the infection being carried by flies.——Two schools were closed in Chester for fumigation, December 4, because of diphtheria. All public schools have been closed and Sunday School sessions prohibited for the present at Brownstown, because of an extensive outbreak of diphtheria.

Housing Campaign.—The Suburban Cooperative Planning Conference was held at the Bellevue-Stratford, Philadelphia, November 20. Parts of four counties, embracing twelve townships of the first class, sixty-six of the second and fifty-two boroughs and two cities, Chester and Philadelphia, were represented. Recent investigations have brought to light that certain "shanty towns" in Wayne, Bryn Mawr and Rosemont, present conditions worse than city slums and that improper sanitation and inadequate housing have made settlements exceedingly menacing. The purpose of the meeting was to provide for cooperative action for a comprehensive scheme of town development, an act being prepared for presentation to the legislature providing for the establishment of a state planning commission.

Philadelphia

Favor Health Plan.—Four progressive measures that have been drawn up by Mayor Blankenburg's advisory committee to be introduced into the next legislature have been endorsed by the Society for the Prevention of Tuberculosis. The proposed measures will prohibit dry sweeping in public places, the use of common drinking-cup and roller towels, and make it necessary for fruit, meat and pastry exposed for sale to be covered.

Money Pledged for New Maternity Hospital.—The Federation of Jewish Charities has pledged the sum of $40,000 to the Jewish Maternity Hospital for the purpose of building a new hospital. Payments of this sum are to be made as follows: $5,000 to be paid when contracts have been signed for the erection of the proposed building, and not less than $5,000 every twelve months thereafter, until the above obligation has been fulfilled.

Philadelphia Nurseries Discuss Pure Milk.—At the semi-annual meeting of the Philadelphia Association of Day Nurseries, held November 21, and attended by presidents and delegates from each of the twenty-three nurseries in and about the city, the importance of cleanliness in handling milk for children and the rigid scrutiny of all sources of supply were fully discussed. Mrs. William Frazier presided and reports were made by each of the nurseries of inspections of milk supplies in each of the districts. More than 700 children are annually cared for by these institutions.

VIRGINIA

New Officers.—Petersburg Medical Faculty, sixty-seventh annual meeting, November 22: president, Dr. E. L. McGill; secretary-treasurer, Dr. W. C. Powell.

Open-Air School to be Opened.—Plans presented by Dr. Lawrence T. Price, Richmond, for the operation of an open-air school in that city, have been approved by the school board, and the class will be opened in February on the roof of the new Madison Street School building.

Public Health Association Meeting.—The Virginia State Public Health Association at its meeting in Norfolk, October 25, elected the following officers: Dr. Powhatan S. Schenck, Norfolk, president; Drs. O. C. Wright, Jarratt, and E. F. Reese, Courtland, vice-presidents; Dr. Lucien Lofton, North Emporia, secretary-treasurer, and Dr. W. F. Driver, New Market, assistant secretary-treasurer.

Opening of Medical College.—The new home of the University College of Medicine, Richmond, was formally opened November 28, in the presence of more than 1,000 guests. An unexpected feature of the opening exercises was the presentation of a silver service to Dr. Stuart McGuire, president of the college, by Dr. J. Allison Hodges, his predecessor, on behalf of the board of trustees and the faculty.

Personal.—Dr. J. M. Burke, Petersburg, chief surgeon of the Seaboard Air Line Railway, was presented by the surgeons of that line, with a handsome silver loving-cup.——Dr. W. M. Tunstall, Lovingston, who has been under treatment at the University Hospital, Charlottesville, on account of injuries received in a runaway accident, has recovered and returned

home.——Dr. Charles R. Robins has been elected a member of the school board of Richmond.

The Public Health Propaganda.—Lectures on public health and social betterment are to be made a more prominent feature of the work of the state board of education. In furtherance of this design, officers and employees of the State Health Department have delivered lectures and made public speeches in practically every county and city in the state. In addition, a list of lectures has been prepared by practitioners, publicists and directors, all of whom are available for lectures and addresses in various parts of the state, subject only to the payment of necessary expenses. General lectures on the prevention of disease head the list. There are addresses on tuberculosis, typhoid, hookworm, the fly, school sanitation, municipal water and sewers, health organization, the waste of child life, registration of vital statistics, mental defectives and social diseases. The speakers directly under the state board are health commissioner, Dr. Ennion G. Williams; assistant commissioners, Dr. Allen W. Freeman, Dr. Roy K. Flannagan and D. S. Freeman, J. J. Lloyd, Jr., K. E. Miller, W. A. Brumfield, A. C. Fisher, L. T. Royster, W. H. Heck, Richard Messer, C. E. and W. A. Plecker. In addition to the general health topics, lectures are available by speakers not under control of the board, but cooperating with it, on nursing, disease and poverty, food inspection, pure milk, Virginia's feeble-minded, eugenics and heredity, and oral hygiene and care of the teeth. Among the speakers are the following: President Edwin A. Alderman, University of Virginia; Dr. R. W. Garnett, Charlottesville; Dr. E. C. Levy, Richmond; Dr. W. Brownley Foster, Roanoke; Dr. Powhatan S. Schenck, Norfolk; Prof. C. G. Maphis, University of Virginia; J. D. Eggleston, superintendent of public instruction; Dr. Charles P. Wertenbaker, U. S. P. H. Service; Drs. McGuire Newton, B. M. Rosebro, C. C. Hudson, Stuart McGuire and Greer Baughman, Richmond; Rev. James Buchanan, Richmond; Miss Nannie J. Minor, Richmond, Dr. F. M. Perrow, Lynchburg; W. D. Saunders, state dairy and food commissioner; Peyton Rowe, dairy inspector; Dr. J. N. Barney, Fredericksburg; Rev. J. T. Mastin, secretary state board of charities and corrections; Dr. William F. Drewry, Petersburg, and Prof. H. E. Jordan, University of Virginia.

WASHINGTON

New Officers.—Snohomish County Medical Society at Everett: president, Dr. H. P. Howard; secretary-treasurer, Dr. L. G. Woodford, both of Everett.

Interstate Reciprocity.—The recommendation of the Idaho State Medical Society that bills should be drafted that would bring about medical reciprocity between Oregon, Washington and Idaho was rejected by the King County Medical Society at its meeting in Seattle, October 21.——The Snohomish County Medical Society has placed itself on record as approving the reciprocity proposal.

Personal.—Dr. Helen B. Babcock, Seattle, returned November 25, after a trip to the Orient.——Dr. A. L. Mathieu has transferred his office in South Bend to Dr. F. W. Anderson of Pe Ell, formerly resident surgeon at the Northern Pacific Hospital, Tacoma. On January 1 Dr. Mathieu will Join Dr. A. L. Maclennan in the management of the Riverview Hospital, Raymond.——Drs. Ida Rebecca Lantz and E. Howard Hopkins, Hillyard, have been appointed members of the Spokane County medical consulting staff.

WEST VIRGINIA

Personal.—Dr. H. D. Hatfield, Eckman, governor-elect of West Virginia, who has been ill with pneumonia, is reported convalescent.——Dr. Elias W. Woodruff, Dallas, was painfully injured by explosion of carbolic acid, recently.——Dr. G. A. David, Summit Point, was operated on at Franklin Square Hospital, Baltimore, recently, for the removal of a cyst of the lower jaw.——Dr. Gist Palmer, Wellsburg, is reported to be ill at a hospital in Pittsburgh.

Tuberculosis Notes.—It has been settled that the Belmont County Antituberculosis Dispensary will be located in Bridgeport.——At the meeting of the West Virginia Antituberculosis Society, held in Wheeling, November 12, Dr. R. D. Roller, Jr., Eccles, and Dr. D. B. Roller, Charleston, were elected vice-presidents; Dr. I. B. Bullard, Charleston, was elected secertary; Dr. C. A. Wingerter, Wheeling, chairman of the publicity and lecture committee, and Dr. Harriett B. Jones, Wheeling, president of the tuberculosis exhibit committee.——The dispensary of the Ohio County Antituberculosis League, Wheeling, was formally opened, October 29. The dispensary is to be open on Tuesday and Saturday at 12 o'clock.

WISCONSIN

Small-Pox Closes School.—Fourteen cases of small-pox in La Crosse have caused the board of education to order the school in the infected district to be closed.

New Officers.—West Wisconsin District Medical Society at Eau Claire, November 27: president, Dr. J. V. R. Lyman; secretary-treasurer, Dr. E. E. Tupper, both of Eau Claire (reelected).——Fond du Lac County Medical Society, November 13, at Fond du Lac: president, Dr. L. A. Bishop; secretary-treasurer, Dr. Flora A. Read.——Wisconsin Women's Medical Society at Milwaukee, November 13: president, Dr. Luella Axtell, Marinette; secretary-treasurer, Dr. Minnie Hopkins, Oconto.

Personal.—Dr. P. F. Gaunt, Oconto, was operated on in Mercy Hospital, Chicago, November 6.——Drs. F. V. Evert, Retreat, and H. C. Maurer, Beloit, were recently operated on for appendicitis.——Dr. R. Lloyd Williams, Green Lake, has been appointed house physician to the Johnston Emergency Hospital, Milwaukee.——Dr. Robert E. Flynn, La Crosse, has been elected physician of La Crosse County.——Dr. A. S. Gilles of the Sacred Heart Sanatorium, Milwaukee, has been appointed medical director of the Waukesha Moor Bath.

Hospital Notes.—At a meeting of the south side city physicians of Milwaukee, recently, the establishment of a new general hospital for that section of the city was considered, and a committee was appointed to confer with representatives of the South Side Civics Association regarding the enterprise. ——The Milwaukee Maternity Hospital Association has bought the lot on which the hospital building stands and expects to erect a new building on the site.——Property on Prospect Street, Appleton, has been sold to the county and will be reopened and remodeled as a maternity hospital early in the year.—— The new isolation hospital, at Eighteenth Avenue and Mitchell Street, Milwaukee, is completed and ready for occupancy.

The Tuberculosis Conflict.—The Wisconsin Antituberculosis Association has secured the provision of eight sanatoriums for second and third stage patients to care for 250 patients and proceedings regarding seven other sanatoriums are pending with county boards. The association has also brought about the employment of twenty visiting municipal tuberculosis school nurses in cities outside of Milwaukee. It has created sentiment for the installation of local expert health officers in two cases, the establishment of three open-air schools, the medical inspection of schools in fifteen towns and the abolition of common drinking-cups and roller towels. It has been largely responsible for securing the gift of the $32,000 Blue Mound Sanatorium to Milwaukee, for filling beds and a waiting list at the state sanatorium, for the establishment of a tuberculosis sanatorium and two visiting nurses in the Milwaukee Health Department and for making tuberculosis the best understood and most intelligently resisted disease in Wisconsin among children and the ignorant as well as among the most enlightened adults.——The county board of Kenosha County has appropriated $20,000 for the erection of a tuberculosis hospital.——The Outagamie County board has appropriated $20,000 for a county tuberculosis sanatorium.—— Dane County has selected the farm of the late Henry J. Southerland, four miles south of Madison, as the site for its tuberculosis sanatorium.——In Sheboygan County the county asylum farm has been selected as a site for the tuberculosis sanatorium.——The Milwaukee County board has received a recommendation of the board of trustees of the tuberculosis hospital asking for an appropriation of $350,000 to build a tuberculosis hospital near the Milwaukee County Hospital for the insane.——The Beaver County Board of Directors has voted $20,000 for a tuberculosis sanatorium.——Fond du Lac County has appropriated $15,000 for the construction of a sanatorium and its maintenance for one year, and an additional appropriation of $1,000 is required for the purchase of a new site for the building.

GENERAL

New Leper Colony Planned.—It is reported that it is the intention of the United States government to give aid to the establishment of a leper colony on the island of San Clemente, off the coast of Southern California.

Common Towel Banished.—An amendment to the interstate quarantine regulations, in force December 9, by the treasury department, orders the abolition of the common towel from railroad cars, steamers and other interstate vehicles and stations. Towels may be used again only after sterilization.

Southern Society Incorporated.—Incorporation papers of the Southern Medical Association were filed in Mobile, November 21, by Drs. Isadore H. Dyer, New Orleans; Seale Harris,

Mobile; B. L. Wyman, Birmingham; G. C. Savage, Nashville; H. H. Martin, Savannah, Ga.; W. W. Crawford, Hattiesburg, Miss., and J. M. Jackson, Miami, Fla.

Health League Recommended.—Surgeon Charles P. Wertenbaker, U. S. P. H. Service, stationed at Norfolk, has recommended to the Southern Sociologic Congress that it make the formation of health leagues one of the features of its work during the coming year. Such a league has been established by Dr. Wertenbaker at Norfolk, the aims of which are thorough sanitary inspection, correction of sanitary abuses and lectures on sanitary and personal hygiene, food values, preparation of food, resistance of domestic waste, the cultivation of physical efficiency and the building up of resistance of disease.

Lake Michigan Sanitary Association.—At the annual meeting of the Lake Michigan Sanitary Association in Milwaukee, November 26, resolutions were adopted petitioning Congress to make an exhaustive investigation of the Great Lakes; supporting the enactment by Congress of the bill carrying $300,000, including $25,000 for Lake Michigan, now under construction; for the purpose of making investigation of the extent and of the injury inflicted by the pollution of the lake water on the health of the population of the lake region, and endorsing the report on sewage disposal submitted to the authorities of Milwaukee, and the efforts of the present administration of the city of Milwaukee to carry out the recommendations embodied in the report, and recommending its study and consideration by the health officers of the several cities on the Great Lakes.

Personal.—The Buchanan Medal, awarded by the Royal Society to Col. William C. Gorgas, M. C., U. S. Army, chief sanitary officer of the Isthmian Canal Zone, was presented at a meeting of the society, November 30, and was accepted on behalf of Colonel Gorgas by the private secretary of the United States Ambassador.——Colonel Gorgas and staff sailed for Guayaquil, Ecuador, December 4, where he will make an investigation of the sanitary condition of the port, at the request of the government of Ecuador.——Dr. Carl Alsberg, a chemist in the Bureau of Drugs and Plants, has been appointed chief of the board of chemistry of the Department of Agriculture, a position which has remained vacant since the resignation several months ago of Dr. Harvey W. Wiley.——Dr. Paul Preble, U. S. P. H. Service, has been directed to investigate the prevalence of tuberculosis, trachoma, small-pox and other contagious diseases among the Indians of North and South Dakota.——Major Clyde S. Ford, M. C., U. S. Army, on duty at the American United States Embassy, Constantinople, is working energetically at the cholera camp at San Stefano.

FOREIGN

Hygiene Exposition at Genoa, Italy.—The international hygiene and maritime exposition to be held at Genoa, Italy, March, 1914, is to have an Italian colonial exhibit which is to be made a special feature of the exposition from the historical and medical standpoints.

Personal.—The Norwegian physician Dr. C. Frellsen, who has been a practitioner at Antwerp, Holland, since 1877, recently returned to Christiania to live. His friends at Antwerp presented him with a purse of $5,000 when he left and gave him a souvenir address printed at the Plantin press which dates from the sixteenth century.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Nov. 23, 1912.

The National Insurance Act: The Crisis in the Profession at Hand

The special representative meeting of the British Medical Association has been discussing during the week the most momentous question that has ever been presented to the profession: whether to decline service under the national insurance act or to come to some compromise with the government. As stated in a previous letter, the great majority of the divisions of the association passed resolutions against working the act. At this meeting a prolonged and animated discussion took place which, as in previous meetings of the representatives, showed the existence of two parties, both indeed hostile to the act but one more uncompromising than the other. After some discussion it was decided to select from the agenda the following resolution of the Bradford division as the one best suited for bringing the question to the point: "That in the opinion of this representative meeting the regulations issued by the insurance commissioners and the latest proposals of the Chancellor of the Exchequer (described in my previous letter) are unworkable, derogatory to the profession and a positive danger to national health. As a consequence the medical profession declines to undertake service under the act and regulations as at present constituted." It was suggested that the words "a positive danger to national health" were too strong and should be deleted. This was done and the resolution was carried by an overwhelming majority. An amendment to substitute the word "unsatisfactory" for "unworkable and derogatory to the profession" as being unnecessarily provocative was lost. A discussion was then taken on a more conciliatory motion of the Norwich division: "That the recent offer of the Chancellor of the Exchequer affords the British Medical Association an opportunity for conferring with him and with the commissioners as to the points on which the demands of the profession have not yet been met." After discussion the words "as to, etc.," were deleted and for them were substituted the words "with a view to the settlement of the points on which the demands of the profession have not yet been met." As amended, the resolution was carried by a majority of 107 to 84. The representative of the Hereford division moved that a copy of the resolution be sent to the chancellor and that he be informed that "any further proposals of the government for meeting the grave objections of the profession shall receive the most careful consideration of the British Medical Association." After discussion it was decided to take a card vote on this motion. This revealed an extraordinary equality of divided opinion whether to enter into negotiations or not with the government. For doing so the card vote was 9,292; against, 9,269; majority, 23. If the voting had been taken by constituencies the resolution would have been reversed by a slight majority: ayes, 100; noes, 101. Ultimately it was decided to appoint five members to confer with the chancellor.

HOSTILITY OF THE TRADE-UNIONS TO THE PROFESSION'S DEMANDS

The executive board of the General Federation of Trade-Unions has issued a statement that "The continued subordination of the general interests of the community to the financial interests of the medical profession can be described only as scandalous." This is a little remarkable when one considers that the policy of trade-unionism in general is thus accurately described. It is not so long ago since in the London dock strike the Union of Transport Workers attempted to hold up the food-supplies of fourteen million people by stopping the unloading of the Thames shipping. The reason for the strike was flimsy, for these workers though lowly skilled are highly paid. Their leaders thought the time had come when they could dictate the terms on which transport from the docks was to be carried on. But the practice of the most ruthless egoism and the preaching at the same time of altruism for other people has always characterized the labor leaders. The following resolution has been sent to the Chancellor of the Exchequer: "The executive board of the General Federation of Trade-Unions, representing an affiliation of 195 trade-unions, emphatically protests against the continued attempts of the medical profession to exploit the national insurance act and to avoid any semblance of control by the insured persons or their representatives. The board urges the pressing need for an immediate settlement of the dispute concerning medical attendance by the creation of a state medical service or by the transference to the credit of the approved societies of those amounts last offered for medical attendance and medicine, in order that neither the approved societies nor their members may suffer any further disadvantage or handicap through the refusal of the medical profession to accept the more than generous terms now offered."

A Tribute to American Medicine

In a letter to the *Lancet*, Mr. Arbuthnot Lane has expressed his gratification at the recognition of Carrel's magnificent work by the bestowal of the Nobel prize and incidentally paid a warm tribute to American medicine. To him the career of Carrel, Frenchman though he may be by birth, is typical of the intense desire to progress which pervades America. The American man of science devotes himself heart and soul to his work, feeling that merit is the only road to success, and that if he does succeed he commands the love, esteem and admiration of his fellows in a manner that does not exist in the more complicated conditions of the Old World. The more Mr. Lane sees of America the more he is impressed by the determination of the members of its medical profession to occupy the van of progress by rendering themselves familiar with any advance in science and by combining among themselves to

ensure a very high and progressive standard of knowledge. Mr. Lane concludes: "America has every reason to be proud of its capacity to present to the moving spirits of the world a soil in which they can grow with uninterrupted and stimulated vigor, and in which merit and genius receive a recognition unequaled, I believe, elsewhere. Carrel is a typical product of these conditions."

The Origin of Life

The recent address at the British Association by the president, Professor Schafer, on the origin of life (abstracted in a previous letter) has naturally aroused criticism in scientific circles. The veteran naturalist, Dr. Alfred Russell Wallace, the codiscoverer with Darwin of natural selection, concludes an article on the subject as follows: "In the whole vast world of life, in all its myriad forms, whether we examine the lowest types possessed of the simplest characteristics of life, or whether we examine the higher forms of life, we follow the process of growth from a single cell up to the completed organism, even to that of a living, moving, feeling, thinking, reasoning being such as man himself; we find everything a stupendous, unceasing series of continuous motions of the gases, fluids and solids of which the body consists. These motions are strictly coordinated, and, taken together with the requisite directing and organizing forces, imply the presence of some active mind-power. . . . The assertion that life is due to chemical and mechanical processes alone is quite unjustified. Neither the probability of such an origin nor even its possibility has been supported by anything which can be termed scientific facts or logical reasoning."

Discussing the same question at the Chemical Society of London in an address on "The Discovery of Radio-Activity; Its Influence on the Course of Physical Science," Sir Oliver Lodge remarked that the great thing to avoid in science was negations. Let them make and substantiate positive assertions. It might be impossible to construct living matter out of artificially combined materials, but the attempt was quite legitimate, and no one could say that it would never be successful. In so far as life demanded energy for its peculiar manifestations, a possible source of such energy might be suggested in the phenomenon of radio-activity. In the physical universe our power was limited to the movement of matter; all that happened after that was due to the properties of matter and of its ethereal environment. If potentially living matter was ever artificially produced by placing things in juxtaposition and bringing natural physical resources to bear on the assemblage, which was all that we could do, then it might become alive. But if this last step were taken it would be because something beyond matter, and outside the region of physics and chemistry, had stepped in and utilized the material aggregate provided, in the same way, presumably, as that in which it now steps in and utilizes the material provided, say, in an egg or a seed.

The Government Inquiry Into Nostrums. The Failure of a Prosecution

At the last sitting of the committee of the House of Commons appointed to inquire into the present state of the law regarding the advertisement and sale of nostrums the important question arose as to the power under the existing law to prosecute venders. Professor Dixon gave evidence to the effect that if the law were put into action the evil might be considerably mitigated as the Merchandise Act gave power to public authorities to prosecute in case of fraudulent misrepresentation, and he referred to a prosecution by the Liverpool corporation as an example. When Dr. E. W. Hope, health officer of Liverpool, was communicated with, however, he stated that in 1907 information was laid against a firm of pharmacists as the venders of a patent medicine (not their own preparation) on the ground that a false representation was made on the label. The case was withdrawn, as no evidence of guilty knowledge on the part of the venders could be brought forward and the pharmacists were awarded $26 costs. Further analyses had been made of patent medicines, but no local proceedings had been taken since.

The Pasteurization of Milk Criticized

Dr. Ralph Vincent, a pediatrist who has done a good deal of research work, seriously criticizes the prevalent practice of sterilizing and pasteurizing milk. He states that as the result of bacteriologic work, experiments on animals and an extensive clinical experience, to treat milk by these methods is to destroy the very germ (*Streptococcus lacticus*) on which the wholesome state of the milk depends, and in the absence of which other putrefactive germs have full play, producing acute poisonous effects in the bowel of the infant, leading frequently to a fatal result, especially during a hot season. Vincent's remedy is a simple one viz., never use anything but raw milk, cooled in the refrigerator immediately after milking to a temperature of about 35 F., and sent out in receptacles fitted with an insulating "air wall," so that there is no rise of temperature in its transit to the house of the consumer. This method would lead to a slightly increased cost but it is asserted that this need not be large.

Libel Action by a Nostrum-Vender Against the British Medical Association

The publication of the book "Secret Remedies: What They Cost and What They Contain" by the British Medical Association has naturally been much resented by the nostrum-venders who, however, have not thought it wise to attempt any legal action. At last, Stevens & Co., selling a nostrum as a cure for consumption, has brought an action for damages. This case, which occupied the attention of the court for a week, is most important, as it shows the danger to which any one who endeavors to expose quackery is exposed under the present state of the law, in spite of overwhelming medical evidence of the justice of the strictures passed. After referring in general terms to fictitious claims for inert nostrums the book goes on to say: "It is the victim's money that is wanted; therefore the price is fixed high and the advertisements written up to it. Although Stevens is so engagingly candid about his rivals he follows the plan of sending one letter after another to any sufferer whose name he may have obtained, a system which seems to have been invented in America; it is certainly cheaper than bold advertisement in the newspapers, and is apparently more satisfactory, as it enables the vender to give individual attention to the depth of his correspondent's pocket. The farce of revealing a formula by such fancy names as these is one of the oldest dodges of the quack medicine man and no such names as 'umckaloabo' and 'chijitse' appear in any available work of reference in pharmacy." Later the following description was given: "Stevens, C. H., the proprietor of a remedy for consumption, which has been put on the market in South Africa and England under the name of Sacco and later in South Africa as Lungsava, the recipe for which is stated to have been long in use among the Kaffirs and Zulus. Stevens has acquired a number of testimonials from medical men who must now regret their precipitate action. He is now in England on a new campaign." The remedy was described as "a clear red liquid containing in 100 fluid parts 21.3 parts of alcohol, 1.8 of glycerin and 4 parts of solid substance. This solid substance agreed in all respects with the solids of decoction of krameria or a mixture of this with a little tincture of kino."

For the plaintiff, Mr. E. M. Holmes, curator of the Pharmaceutical Society of Great Britain and formerly lecturer for the society, gave evidence that the plaintiff had submitted to him for examination two substances—a plant called chijitse, which he recognized as belonging to the natural order *Geraniaceae* and a root, called umckaloabo, which, from microscopic examination he believed belonged to the *Polygonaceae* family. Some analytical chemists also gave evidence that they had examined the plaintiff's remedy and found that it did not contain either krameria or kino. Several doctors of no eminence whatever, one of whom described himself as the "author of a number of letters to the *Lancet*," stated that they had found the nostrum beneficial. Stevens himself gave evidence that his mixture was made from the plant mentioned above which grew in South Africa and was used by the natives in the treatment of consumption and also from the root mentioned. When "Secret Remedies" was published he was doing a large business—$21,000 a year; after its publication his receipts dropped to $14,500. He had sent letters to thousands of physicians and had received thousands of letters from them, though often with requests not to publish their names. On cross-examination he admitted that the statement in one of his advertisements that he had gone through unexplored country in Africa and spent thousands of pounds to get the remedy was "exaggerated;" it was written by an advertising agent and he did not read it carefully. For the defense a number of eminent specialists, Dr. Theodore Acland, Sir Douglas Powell, Dr. Arthur Latham and others were called and stated that there was no evidence whatever that Stevens' mixture had any curative properties or contained any active principle capable of influencing consumption.

Mr. Justice Pickford in summing up said that the case was important, because if the plaintiff had been wrongfully accused he was entitled to be cleared. On the other hand, it was important that the British Medical Association should have a right to criticize things said to be cures. The verdict of the

jury did not necessarily involve whether the remedy was good or bad. The defendants had said in effect that the plaintiff claimed in his advertisements to cure advanced cases of consumption, although he knew he could not do so. If they proved that, they were entitled to a verdict. In his advertisements the plaintiff had claimed to cure every case of consumption. He also stated that he returned to England from South Africa "to prove his work to the satisfaction of the British government." This was inaccurate, because he returned to start a commercial enterprise. In another advertisement he said: "It cost me many years of ceaseless toil to bring the remedy to its present state of perfection." He had given no evidence to that effect. In another advertisement he invited persons suffering from consumption to such an extent as "to consume all except the soul and the bones" to see him. Persons in the last stage would naturally pay anything. Did he honestly believe that he had a remedy which would then be effective? None of the physicians called by him had said anything which justified his claim to cure advanced cases. If he made claims which he knew were improper, then the defendants had proved what they said. If it was not quite true the defendants might have to pay damages. The jury disagreed and was discharged.

It is a melancholy fact that no matter how preposterous the claims for a nostrum may be physicians can always be found to swear that it has proved beneficial in their experience, but these are never men of any professional eminence. They are quite unknown to the general profession until they appear in the witness box.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 15, 1912.

Population Statistics

The population of France during the first semester of 1912 shows in place of the excess of 18,279 deaths recorded during the first six months of 1911, an excess of 14,172 births. This is caused by a decrease in the death-rate, for the birth-rate has continued to decrease in spite of an increase in the marriage-rate.

Formation of an Army Morphologic Laboratory

A laboratory of morphology has been founded at the Palais des Invalides. It is intended to permit the army to benefit by recent work on human morphology and to make use of soldiers for the study of anthropologic types.

Dr. Monprofit and the Balkan War

Dr. Monprofit, professor of clinical surgery at the Ecole préparatoire de médecine d'Angers, has been invited by the Greek government to go to Greece to organize a sanitary service in the military hospitals. He has accepted on condition that his sojourn in Greece shall be only for a few weeks and that he shall remain free to return to France if European complications arise.

Foundation of a Municipal Museum of Hygiene

The city of Paris has just founded a museum of hygiene which includes a library of seven sections devoted to urban hygiene, the hygiene of dwellings, prophylaxis, the hygiene of foods, group hygiene, hygiene of transportation and social hygiene.

One Hundred and Fiftieth Anniversary of the National Veterinary School of Lyons

The one hundred and fiftieth anniversary of the foundation of the national veterinary school of Lyons has just been celebrated in that city. It is the oldest in France and perhaps in the entire world.

The Foundation of the International Bureau of Foodstuffs

As I have mentioned in a previous letter (THE JOURNAL, Nov. 2, 1912, p. 1637), the official delegates of the various governments represented at the international congress for the investigation of methods of analysis have decided on the creation of a permanent international bureau of analyses of foodstuffs, to be located in Paris, in recognition of the leading rôle taken by the French in the combat against adulteration of foodstuffs.

Unhealthful Houses in Paris

At the last meeting of the Société de statistique, M. Juillerat explained the working of the bureau which has in charge the sanitary condition of the houses of Paris. Since Jan. 1, 1894, account has been kept of the number of deaths from contagious diseases, especially pulmonary tuberculosis, in each house in Paris. In 1904, ten years after the records had been started, an abstract of the records was made which showed the distribution of tuberculosis in the houses. This showed that 38 per cent. of the total number of deaths had occurred in 5,263 houses. Certain sections and streets were responsible for two or three times as many deaths as occurred in the rest of the city. The officials decided then to employ means which the law of Feb. 15, 1902, had authorized for the protection of the public health, in an attempt to clean up those houses which were the active foci of tuberculosis and to make them healthful. The chief fault was the darkness of the living-rooms. Up to 1908, the number of deaths from tuberculosis had been increasing. In 1907 and 1908 a total of 10,262 was reached. March 1, 1909, 549 houses, a little more than one-tenth of the tuberculous houses, had been improved by having airless and dark rooms abolished. In 1909 the death-rate from tuberculosis fell to 9,714. March 1, 1910, the number of houses made sanitary was 886 and the mortality fell to 9,449. March 1, 1911, 1,132 houses had been overhauled and the mortality had fallen to 9,371. This is real progress, and ought to justify the conclusion that the work of the bureau is responsible for the good results. Dr. Juillerat believes that the same system may be applied to other diseases, especially cancer, which seems to be similar as far as houses are concerned to tuberculosis, since one-tenth of the deaths from cancer in the past five years have occurred in houses classed as tuberculous.

Responsibility of the Surgeon

A patient entered the Bichat hospital in the service of Dr. Lecène to be operated on for appendicitis. He was placed on the operating-table, anesthetized with chloroform and washed with soap, alcohol and ether. These substances were then wiped off with compresses. At this moment, having perceived an acne papule which later might cause infection, Dr. Lecène asked for a thermocautery. In burning the papule he caused a severe accident, for some alcohol which remained blazed up, severely burning the patient. Several months later Dr. Lecène and the Assistance Publique were sued for 60,000 francs ($12,000). The tribunal named three experts, Professors Pozzi, Reclus and Duval, who decided that there was no professional fault. The burn had been caused by pure accident, led up to by the unsual conformation of the patient. The ether and the alcohol had been wiped away with dry compresses according to custom; but a deformity of the hip of the patient, caused by hip-joint disease from which he had suffered when young, had caused a little alcohol to remain in the inguinal fold, which was unusually deep; besides, the patient did not lie flat on the table because the loins owing to ankylosis were unusually prominent, and the alcohol ran under his back and was absorbed by the linen which had been placed there. Notwithstanding the opinion of the experts, the court decided that though there may not have been professional fault, there was at least negligence. Far from agreeing that the deformity of the patient justified an interpretation of the injury as accidental, the court decided that the surgeon, who must have noticed the deformity and who ought to have paid special attention to it, ought not to have let the thermocautery touch the patient until he was sure that no trace of alcohol remained on any part of the body, especially in the unusually deep inguinal fold, and under the back. The Assistance Publique was freed from blame, but Dr. Lecène was ordered to give the patient 15,000 francs ($3,000) damages.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 15, 1912.

Personal

November 19, Professor Czerny, the well known Heidelberg surgeon, celebrates his seventieth birthday. He was born in Austria and studied medicine at Vienna. At first he devoted himself to ophthalmology; then he became assistant of Oppolzer and in 1868 assistant of Billroth. In August, 1870, as Billroth's assistant, he went as volunteer to the Franco-Prussian War and distinguished himself mainly in the management of the hospital at Weisenburg. In 1871 he became connected with the faculty at Vienna, but the same year was called to Freiburg as director of the surgical clinic. In 1877 he became successor of Gustav Simon, director of the surgical clinic at Heidelberg. In 1906 he resigned his office of surgical instructor in order to devote himself completely to the foundation and management of the Heidelberg institute for cancer research.

Prof. A. Czerny of Strassburg, cousin of the Heidelberg surgeon, has received a call to the position of director of the Ber-

lin pediatric clinic, as successor of Heubner. On the list of those proposed for the appointment were the names of Professor Finkelstein of Berlin and Professor Salge of Freiburg, both pupils of Heubner. According to all indications, Czerny will accept the position.

At the request of the faculty, Dr. Grotjahn has accepted a position as instructor in social hygiene; in this way the professorship of social medicine and hygiene, which is vacant as the result of the appointment of Kirchner as ministerial director, will at least be partly filled.

Professor Wessely is temporarily in charge of the Würzburg eye clinic, whose director, Professor Hess, as I have already reported, has gone to Munich.

Professor Kretz, director of the Würzburg pathologic institute, contemplates resigning his position.

The title of "Excellency" has been conferred on Prof. von Angerer, the well-known Munich surgeon and private physician to the prince regent of Bavaria. In Bavaria this distinction is conferred on medical men less frequently than in Prussia. Prof. von Leube is the only other physician in Bavaria who holds this title.

Advertisements on Wrapping Paper Used by Pharmacists

Attention has been repeatedly called by physicians to the evils connected with the practice of having advertisements printed on the paper used by pharmacists and druggists in wrapping their goods. These wrappers are, to a large extent, supplied without charge by manufacturers of medicines, food preparations, etc., and are covered with printed commendations of their product. In this way they secure efficacious advertising before the public, and the pharmacists and druggists are willing to lend a helping hand as accomplices, because in this manner they get the wrappers free. Physicians are interested in the elimination of this evil, as the public is led by such advertising to self-treatment. After attention was called to this fact at the last year's *Aerztetag*, as I reported at that time, the *Deutsche medizinische Wochenschrift* took an especially strong stand against this evil. Fortunately, the board of directors of the German Pharmaceutic Association has recommended to its members not to use any more such wrapping paper. Recently also the society of drug manufacturers has recommended similar abstention to its members. In the resolutions adopted it was also advised that with pharmaceutic preparations there should not be included explicit advice as to self-treatment, physician's reports, physicians' statements as to the results of the treatment, and testimonials. [A fatality from this cause has recently been reported in Germany: The purchaser took the medicine according to the directions found on the wrapper around the bottle, which were in the advertisement of an entirely different remedy.]

Russian Students

As I reported some time ago, the medical students of Munich took strict precautions against the overcrowding of the local clinics with Russian students, especially undesirable ones. Recently a St. Petersburg daily newspaper harshly criticized its countrymen as revolutionary and lacking in regard for the most elementary requirements of decency. Following this, the Berlin *Vossische Zeitung* asked a number of local professors, among them Hertwig, Hildebrand and Waldeyer, to express their opinion. Almost all directly contradicted the insulting statements of the Russian newspaper. Hertwig also states that Russian medical students in general are diligent, and that he knows of no misconduct on their part. So far as the treatment of native students by the Russians is concerned, no complaints worth mentioning have come to his knowledge. He says that the German student regards it as an honor for a large university to attract foreign students, and thus to bring recognition of German culture also outside of its own empire.

Reform in the Advertising of Medicinal Articles

In a similar manner as by the control of advertising of remedies in the medical press and by the rejection of objectionable advertisements (in regard to which I informed you in my last letter) the medical press will suppress the advertising evil which is carried on by the distribution of special reprints of articles on therapeutics. It is found that manufacturers of therapeutic products distribute special reprints in which the sections giving unfavorable effects of the described remedy are suppressed, while, on the other hand, statements in favor of the product are made specially conspicuous. Further, favorable reports on remedies are distributed after the statements have been recalled as experience has modified the first impressions. The association of the German medical press therefore passed resolutions at its last meeting declaring that special reprints must be an unchanged copy of the original work. Individual portions must not be made conspicuous for the purpose of advertising, and it is not allowed to make additions or omit certain parts. The reprints supplied to a certain firm may be distributed only with the consent of the author, at first only to the end of the third year following the publication. For the further distribution a new consent of the author is necessary. An industrial firm may be furnished with a supply of special reprints in regard to a remedy only on the manufacturer agreeing not to distribute such reprints to the laity. It remains to be seen how authors, editors and the chemical manufacturing firms will adapt themselves to these requirements.

Instructions in Legal Medicine for the Police

Professor Ziemke of Kiel has established a course of medico-legal instruction for the local police to instruct them in medico-legal questions which must be considered on discovery of crime.

Discreditable Remuneration in Contract Practice

A publication of the medical officers of the insurance societies in one of the larger Bavarian cities shows how just is the complaint of physicians in regard to the insufficient compensation from the Krankenkassen. Of the total appropriation of 322,507 marks for the first half of 1912, for physicians, medicines and remedies, and sick-benefits, physicians received only 19,567, that is, 6.07 per cent. The expense of management of the eight societies in the contract (one local Krankenkasse, four trade Krankenkassen and three free aid societies) will probably be not much lower! The most busily engaged physician received for each individual case (not for the individual service) for half a year 1.73 marks (43¼ cents). In this are included visits up to a distance of two kilometers (a mile and a quarter). More money was paid out to dentists than for special surgical and obstetric services, and for visits more than two kilometers distant.

The city street railway company at Munich has announced that positions for four medical officers were open. The total amount appropriated for these four positions is 3,600 marks, or 900 marks for each ($225), which is less than a street car conductor receives. For this the medical officer will have to examine each man for the acuteness of vision, the sense of color, hearing, nervous system, etc., and give his professional judgment as regards the applications of the sick for leave of absence and stay in the country, and take care of the necessary yearly examination of the railway employees as well as the workmen employed in the varnishing department. However, as a sufficient number of physicians have applied, who have not calculated any further or who have not asked regarding the salary, and as also the organized profession has not expressed any opinion on the subject, the city street railway will get its cheap help.

The Medical Member of the Berlin City Council

A salaried city medical councilor with the function of a regular member of the city council was authorized at the last session of the common council of the city of Berlin. The salary is at first to be 15,000 marks ($3,750), which shall be increased after three years to 18,000 marks ($4,500). (This important innovation was discussed in the Berlin Letter, November 9, p. 1730).

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Nov. 20, 1912.

Sixth International Congress for General and Medical Electrology and Radiology

This congress, held in Prague during the first week of November, was attended by about 760 members. About 130 papers were read. It was impossible to exclude political and racial enmities from even this purely scientific meeting, for Prague is the hotbed of our deplorable political difficulties. Therefore German scientists were ready to boycott the congress, but at the last moment a public clash was averted. It was not the fault of those who had charge of the meeting that political feeling was exhibited. The members were welcomed by the government and the municipality and the social entertainments were of the customary types in such instances. Of the many interesting papers the following are worthy of notice: Professor Stoklasa of Prague spoke on the "Influence of Radio-Active Substances on the Development of Plants." He had worked with pitchblende containing in 1 kg. only 0.000136 gm. of radium. He used from 0.5 to 1 gm. (7½ to 15 grains) of pitchblende enclosed in a glass tube and placed in the

flower-pots. By these means he could increase the productivity of the plants by from 50 to 70 per cent. If radio-active water be used, the best results are obtained with water containing 600 Mache units, as the plant embryo is awakened more quickly and the semen begins to develop with greater energy. In some instances the gain was 100 per cent. compared with ordinary water. It was found that photosynthesis of the carbohydrates in the cells with chlorophyl is increased by radio-activity. This might be used in future farms on a scientific base. Similar experiments were conducted by Professor Doumer of Lille, France. He used emanation; plants in this gas were made to grow more quickly, all the other conditions (temperature, humidity) being equal. The growth of wheat especially was increased.

Professor Mezernickyi of St. Petersburg, read an instructive paper on "Chemical Actions of Radium Emanation." The chief result of his experiments is the fact that purin bases are dissociated by emanation. He therefore emphasizes the hypothesis of His, that uric acid can be dissociated by radium; this was formerly doubted by many authors. Uric acid is broken up into carbon dioxid and ammonia. He further could show that 29 mg. of sodium urate were dissociated by radium emanation within twelve days. Bertolotti of Turin, Italy, has examined various radio-active substances from a therapeutic point of view. He found that actinium and mesothorium are even more energetic in destroying living tissues than radium itself. Ghilarducci of Rome has treated diabetes mellitus with emanation. He claims that in several cases this resulted in a disappearance of sugar from the urine. The use of radio-active waters and emanation in the Bohemian baths was described in a paper by Drs. Pelc and Trema. They have examined the springs of all the Bohemian spas, including Karlsbad and Joachimsthal, and gave in their paper details relating to the inhalation and drinking cure of the various places, as well as descriptions of the bathing establishments.

Dr. Manabe of Tokio described the Japanese radio-active baths. The Japanese make a large hole in the ground where radio-active waters appear and the baths are taken there and then. This prevents the loss of emanation so frequent in the European baths.

"The Surgical Use of Radio-Activity" was the title of a paper by Professor Sticker of Berlin. He employs radium combined with mesothorium for malignant growths, accessible to this treatment, with satisfactory results. A paper by Messrs. Degrais, Wickham and Slavik of Paris dealt with the same subject. The authors have been working on the treatment of cancer by radium for four years. They assert that it is possible to benefit also internal cancer by permanent application of radium in tubes.

The influence of alkalies in the conductivity of the blood was investigated by Professor Trunecek of Prague. He has found that electricity is conducted in the blood not by the water or by its organic substances, but simply by its mineral salts. The latter are dissociated by the electric current into the basic and acid components which are the real carriers of electricity. Trunecek has made a serum out of the salts contained in the normal blood-plasma which, he says, are useful in cases of hypertension and arteriosclerosis, or when the viscosity of the blood has increased owing to the accumulation of acid products of metabolism. The application of high-frequency high-tension currents was shown and described by Professor Etcheverria of Santiago, Chile. He has invented an apparatus permitting application of the strongest currents on the human body with impunity. He uses this method of treatment in certain psychoses and brain diseases and reports good results with this novel method. Dr. Bonnefoy of Cannes states that his observations on the physiologic action of high-frequency currents have convinced him of their calming action on the circulation, although the rapidity of the blood-stream is increased and the peripheral warmth is raised.

A remarkable paper which caused much discussion and criticism was read by Cirera-Salse of Barcelona, who reported that he had cured appendicitis by galvanization and electrolysis. He also pointed out that electrolysis has a great future in the treatment of exudations and inflammations of the pelvic organs. In another paper on the treatment of malignant growths, Wickham of Paris gave details of his method of attacking the newly formed tissue, the essentials being the application of the radium at the base and around the periphery of the growth, and the use of large doses so that destruction of cells is surely obtained; it must be kept in mind that a weak application cannot be compensated or strengthened by the duration of the exposure to the radium. It is advisable to influence all parts of the tumor in an equally strong degree.

Professor Becquerel read a paper on "Radio-Activity and Biology." Although at first it was thought that all life was accompanied by radio-activity, exact investigations have proved that radio-activity is rather detrimental to life, some rays even being directly fatal to cells. Thus the *x*-rays, consisting of positively charged particles and possessing a velocity of 20,000 km. per second, are most abiotic, while the beta-rays, consisting of negative particles (like the cathode rays) and having the highest penetrative power, are about equally dangerous to life. Their chemical action is similar to that of the ultraviolet rays of very short undulations. Interesting data were found by Strutt in his investigations into the age of life in the universe. He has found that a mineral contains the more helium the older it is. The same holds good of fossils from various geologic periods. The alluvial deposits on the rocks of Ontario enabled the scientist to reckon out, under these suppositions, the age of the first oceans inhabited by living organisms as over six hundred millions of years. Since then, evolution had time to take place in the course of the geologic periods.

Although the congress was intended not only for medical men but also for all those interested in electricity (numerous papers being read on wireless telegraphy and on problems of electric traction and light), the majority of the members belonged to our profession. It was a success, as it was possible to attract the attention of the whole civilized world, and at the final meeting it was decided to hold another congress in two years. The meeting-place will be chosen next year.

Definite Regulation of the Relations Between Dentists and Technicians

The long conflict between the surgeon-dentists and the technician-dentists will soon be a matter of the past. According to a bill recently proposed by the government, in the future only graduated physicians will be entitled to practice dentistry in Austria. The technical assistants will be permitted to work only in cooperation with or as subordinates to physicians. The profession of technical dentists (*Zahntechniker*) will be allowed to die out. The law makes certain temporary concessions to those technical dentists who at present are practicing in this country under the technical license. Thus they will be entitled to remove or to fill carious teeth if it is absolutely necessary in the process of substituting a denture, bridge or crown work; but they must not use an anesthetic or do anything that requires profounder medical knowledge. Medical men protest vehemently against this permission of surgical dentistry to non-medical men, while the technicians, on the other hand, demand that for the future all technicians should be able to obtain an extension of license by passing certain examinations in order to be permitted to do minor surgery in the mouth. The bill will put an end to the bitter conflict. Already on these grounds a few years' charges against technicians have been dismissed.

Professor von Pirquet on Diseases of Childhood in School

The well-known specialist for diseases of children recently read before the Society for Hygiene of the School an interesting paper dealing with the diseases of school children. He finds that school diseases can be classified under one of the following heads: infectious diseases, disturbances of development of the body and degeneration. The surroundings are frequently responsible for disturbance of development. Well-fed children grow more rapidly and better than underfed children. Instruction in hygienic principles is of the utmost importance. The chief object of the Society for Hygiene of the School must be to make public the results of the united experiences of parents, teachers and school physicians in order that a healthy and strong generation of children may grow up to be healthy citizens.

Improved Facilities for Veterinary Surgeons

Owing to the boycott organized about a year ago by veterinary students against the veterinary school, the government has found that it is no longer possible to neglect the just demands of the students. Just now veterinary surgeons are in more demand than ever before, partly on account of the threatening war. Thus the government has consented to admit veterinary surgeons into the army under conditions similar to those open for physicians. The school will be endowed with sufficient funds for obtaining ample material for dissecting work, scholarships will be instituted in the school and a completely new equipment with sufficient space for study is being added to the veterinary hospital existing at present. All endeavors are being made to obtain first-class teachers for the students.

Miscellany

Disinfection of Schoolrooms.—Better knowledge of the manner in which infectious diseases are transmitted has shown the importance of contact infection. As the ordinary communicable diseases are more prevalent among children, especially school children, the importance of adopting measures to minimize the dangers of contact infection among them is apparent. In addition to the medical inspection of school children and the isolation of suspects or carriers, the frequent disinfection of schoolrooms is an important preventive of the dissemination of infectious or contagious diseases. At the Fifteenth International Congress on Hygiene and Demography, J. T. Ainslie Walker read a paper on the routine disinfection of schools, which, after giving the results of investigations concerning the rôle of school children in the transmission of infectious diseases to other members of the family, he summarizes as follows: The presence of a certain proportion of infectious children is admittedly unavoidable. These infectious children must diffuse a certain amount of infective material, the removal of which by means of frequent and thorough washing of schoolrooms and cloak-rooms is, on the ground of expense, impossible, or is at least so regarded by the educational authorities. He, therefore, offers the following plan, not as a panacea, but as a reasonably efficient measure in keeping down the occurrence of infectious diseases transmitted by the contact of school children: When the school is over for the day the floor of each class-room should be moistened with a disinfectant solution, such as 1 part of pure phenol to 25 parts of water, by means of an ordinary sprinkling-can with fine holes, and swept in the usual manner while still damp. Desks and seats should be dusted with a cloth sprinkled with the same solution. Dry dusting and sweeping should on no account be permitted. Once a week the walls to a height of 6 or 7 feet from the floor should be moistened with the same preparation by means of a spraying machine; seats, desks, hat- and cloak-pegs should be treated in the same manner and all inaccessible places where dust accumulates should be thoroughly wet with the solution. Every quarter the spraying operation should be extended to include all parts of the walls and ceiling. Walker says that the evil effects of breathing dust filled with bacteria cannot be gauged solely by the actual illness occurring among students. Many minor ailments so contracted may be too mild to warrant absence from school or call for immediate treatment, and Walker regards the method of disinfection by gas or fumigation ineffective. As an argument in favor of greater precautions in disinfection of schools, he says that as children are legally forced to attend school it follows that they should be protected to as great an extent as possible from disease by the most effective practical measures we have at hand. THE JOURNAL is disposed to wonder as to the reception which would be given to this mode of disinfection. The continuous odor of phenol throughout the school building, which would perhaps be even carried home in the scholars' clothing, might arouse protest which would interfere with the carrying out of the plan.

Relation of Eugenics to Euthenics.—Of late years several nations have been viewing with alarm their rapidly diminishing birth-rates. It has not been generally recognized, however, wherein the danger really lies. The fact of a decreasing population may in itself be of serious economic import; and even though the total population is being maintained or is growing on account of immigration, accession from without then means the swamping of the native stock. But immigration aside, the greatest cause for alarm is revealed on an analysis of the statistics on the decrease in the number of children born. Such analysis shows that the decrease is not proportional for the total population, but that it is greatest among those classes of society which are the more desirable, namely, the professional classes, the artisans and the so-called middle classes generally. Statistics show that whereas in London the birth-rate was higher sixty years ago among the classes just mentioned, fifty years later the conditions had become exactly reversed, and that the paupers, the defectives and the undesirable generally were reproducing at a greater rate than the other civic elements. The outcome of such a state of affairs, without the intervention of other forces, would be easy to predict. One modifying factor exists in the differential death-rate, which falls most heavily on the physically and morally unfit; but here again the statistics have shown that this factor is not sufficient as a corrective. Is not this a fertile land for eugenic search? And may the eugenist not hope to offer suggestions of value? It may be some time before we can hope to do much directly to stimulate the birth-rate among the better classes, but is it not time that steps were taken to check it among the worse?—L. J. Cole in *Pop. Sc. Month.*

"Essential Nephralgia."—L. Billon contributes a long article to the *Archives Provinciales de Chirurgie* (1912, xxi, 521), on the question whether there is such a thing as essential nephralgia, that is, pain in the kidney without an essential cause. He reports two cases which apparently belonged to the category but in which the pain was finally traced to abnormal movability of the kidney or other cause, and he is convinced that patient search will reveal a cause in all such cases. He reviews the differential significance of the character and site of the pain, a history of trauma, etc., and discusses the clinical pictures of latent nephritis, perinephritis, liver and pancreas disease, etc., liable to induce pain in the kidneys, and remarks in conclusion that the results have always been fortunate in the cases of the so-called essential nephralgia in which operative measures were applied; some condition was invariably found which explained the pain and which was cured by the operation.

Marriages

JAMES A. RUSMISELL, M.D., Buckhannon, W. Va., to Miss Anna L. McNutt of Sutton, W. Va., at Clarksburg, W. Va., November 21.

FREDERICK M. POINDEXTER, M.D., to Miss Florence Grace Graeter, both of Dillon, Mont., at Argenta, Mont., November 21.

HARRY GLENVILLE TONKIN, M.D., Martinsburg, W. Va., to Miss Mary Lillian Licklider, at Martinsburg, November 28.

EARL WILLIAM CAULDWELL, M.D., Lemont, Ill., to Miss Kathryn Smollen of Hazeldell, at Lemont, November 28.

ROBERT GLENDENNING WASHBURN, M.D., to Mrs. Grace Watrous Foster, both of Milwaukee, Wis., November 28.

FRANK IRA BISHOP, M.D., Williamstown, N. Y., to Miss Florence Morphy of Brantford, Ont., November 18.

ARTHUR MADISON PHILLIPS, M.D., to Miss Lynnie Susan Whitaker, both of New York City, November 27.

HARRY L. PELLE, M.D., Louisville, Ky., to Miss Clara E. Wilson of Shortsville, N. Y., November 23.

MICHAEL ALBERT ABRAMS, M.D., Baltimore, to Miss Marie Silberstein, at Baltimore, November 28.

GEORGE EARL HENTON, M.D., to Miss Bertha Anna Hacker, both of Friend, Neb., November 13.

JACOB LIENCESTER SHIRLEY, M.D., to Miss Ethel J. Mathews, both of Dawson, Ga., November 3.

WILLIAM C. F WITTE, M.D., Milwaukee, Wis., to Miss Lillian E. Barr of Chicago, November 28.

THOMAS A. MCGOLDRICK, M.D., to Miss Rita Connell, both of Brooklyn, N. Y., November 27.

JOHN LOUIS SCHWER, M.D., to Miss Georgia Isherwood, both of Pueblo, Colo., November 28.

ABRAHAM EZRA JAFFIN, M.D., to Miss Matilda Serge, both of Jersey City, N. J., October 8.

CHARLES REHLING, M.D., Fremont, Wis., to Miss Ostrander of Milwaukee, November 20.

OLIVER S. LLOYD, M.D., to Miss Golda L. Pearce, both of Baltimore, November 28.

E. AGNES SCOTT, M.D., and Willard Brandon, both of Denver, Colo., November 19.

MORRIS WENGER, M.D., to Miss Tillie Ullman, both of Reading, Pa., November 28.

Deaths

Edward Curtis, M.D. University of Pennsylvania, Philadelphia, 1864; a member of the Medical Society of the State of New York, and American Association for the Advancement of Science; brevet captain and major U. S. Army, during the Civil War; one of the first to make microphotographs and astronomical photographs; who was placed in charge of the microscopic department of the Army Medical Museum after the Civil War, where he remained until his resignation in 1870; professor of materia medica and therapeutics in the College of Physicians and Surgeons, New York City, from 1873 to 1886, and thereafter professor emeritus; microscopist to the Manhattan Eye and Ear Infirmary; surgeon to the New York Eye and Ear Infirmary; president of the New York Ophthalmological Society; a trustee of the New York Dispensary and medical director of the Equitable Life Insurance Company from 1876 to 1904; died at his home in New York City, November 28, from cerebral hemorrhage, aged 74.

John Dale McGill, M.D. University of Pennsylvania, Philadelphia, 1870; a member of the American Medical Association and Association of Military Surgeons of the United States; medical director and visiting surgeon to St. Francis Hospital, Jersey City; local surgeon of the Pennsylvania and Erie systems and chief surgeon of the North Jersey Street Railway Company; for several years president of the Hudson County Medical Society; for twenty-six years surgeon-general of New Jersey; at one time police commissioner, president of the board of finance, president of the board of education and president of the Hudson County National Bank; died at his home in Jersey City, November 28, from arteriosclerosis, aged 65.

Elizabeth Catherine Keller, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1871; after her graduation a member of the faculty of her alma mater; from 1875 to 1877 senior physician at the New England Hospital for Women, Boston; a member of the New England Medical Society and for several years a member of the Boston school board; died at her home in Jamaica Plain, Boston, November 29, aged 75.

John Ely Brackett, M.D. George Washington University, Washington, D. C., 1870; a member of the Medical Society of the District of Columbia; for many years professor of practice of medicine and later professor emeritus of the principles and practice of medicine in Howard University; died at his home in Washington, December 3, from cerebral hemorrhage, aged 65.

Adelbert John Douglass, M.D. Long Island College Hospital, Brooklyn, 1872; a member of the Medical Society of the State of New York; a member of the staff of Ilion Hospital and one of the oldest practitioners of Herkimer County; sometime president of the village of Ilion and a member of the board of education; died at his home, November 19, from pneumonia, aged 75.

Edwin Fletcher Ward, M.D. College of Physicians and Surgeons, New York City, 1861; a member of the Medical Society of the State of New York; surgeon of the Twenty-Eighth Massachusetts Volunteer Infantry and later on the staff of General Sheridan during the Civil War; died at his home in New York City, November 23, from arteriosclerosis, aged 76.

Edward John Kiepe, Jr., M.D. University of Buffalo, N. Y., 1897; a member of the American Medical Association; adjunct professor of materia medica and pharmacology in his alma mater; was found dead in a hotel in Kansas City, November 23, from the effects of poison believed to have been self-administered with suicidal intent; aged 46.

Lee Balfour Slauter, M.D. College of Physicians and Surgeons, New York City, 1882; for thirty years a practitioner of Fort Worth, Tex.; died in his office, November 22, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of business worries, aged 54.

George Gerald Allred, M.D. Medical College of Indiana, Indianapolis, 1905; of Danville, Ind.; a member of the American Medical Association; coroner of Hendricks County from 1908 to 1912; died in the Methodist Episcopal Hospital, Indianapolis, November 26, after an operation for appendicitis, aged 30.

Charles H. Philpott, M.D. University of Iowa, Iowa City, 1882; vice-president and director of the Des Moines Life Insurance Company; died at his home in Des Moines, November 25, from nephritis, aged 52.

Thomas A. Boggan, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1896; of Tupelo, Miss.; a member of the Mississippi State Medical Association; health officer of Lee County and for several terms a member of the legislature; died while making an address in a school at Mooresville, November 20, aged 65.

George Ebenezer Francis, M.D. Harvard Medical School, 1863; a member of the Massachusetts Medical Society; assistant surgeon in the Navy throughout the Civil War; consulting physician to the Worcester City and St. Vincent's hospitals; died at his home in Worcester, November 20, aged 74.

John T. Hawkins, M.D. University of Louisville, Ky., 1881; a member of the Arkansas Medical Society; of Mount Holly; aged 57; was thrown from his horse while making a professional call near Mount Holly, November 20, and, his foot catching in the stirrup, was dragged to death.

Abraham Lincoln Fox, M.D. Rush Medical College, 1882; of Danville, Ill.; a member of the American Medical Association; died in St. Elizabeth's Hospital, Danville, November 28, from acute nephritis, for which an operation had been performed two days previously, aged 54.

John E. Bruere, M.D. Washington University, St. Louis, 1858; surgeon of United States Volunteers during the Civil War; formerly a practitioner of St. Charles Mo., but for the last five years a resident of New York City; died at his home, November 22, aged 75.

Thomas Mifflin Butler, M.D. Eclectic Medical Institute, Cincinnati, 1857; formerly a practitioner of Pecatonica, Ill.; for twelve years circuit clerk and recorder of Winnebago County; died at his home in Rockford, November 28, from cerebral hemorrhage, aged 79.

Lewis Nelson Davis, M.D. Miami Medical College, Cincinnati, 1873; of Farmland, Ind.; a member of the American Medical Association; president of the Farmland State Bank; died in Harper Hospital, Detroit, Mich., October 3, after a surgical operation, aged 63.

Alvin Matthew Cushing, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1856; formerly a member of the staff of the Wesson Memorial Hospital, Springfield, Mass.; died at his home in that city, December 1, from cerebral hemorrhage, aged 83.

Angus MacOdrum, M.D. Jefferson Medical College, 1900; a member of the American Medical Association; for many years connected with the Cambridge (Mass.) Relief Hospital; died at his home in Cambridge, November 23, from cerebral hemorrhage, aged 47.

Philip McNab, M.D. Long Island College Hospital, Brooklyn, N. Y., 1863; contract surgeon U. S. Army during the Civil War; an expert in medicolegal chemistry; died at his country home near Mooresville, Ind., about November 29, from pneumonia, aged 79.

William H. Jenney, M.D. Cleveland Homeopathic Medical College, 1862; a member of the hospital corps of the Army during the Civil War; first secretary of the Missouri State Homeopathic Medical Society; died in San Diego, Cal., October 19, aged 72.

Asbury J. Russell, M.D. University of Wooster, Cleveland, O., 1868; medical officer of volunteers during the Civil War; of Oakland, Cal; formerly a trustee of Merritt Hospital; died in Grass Valley, Cal., November 26, from cerebral hemorrhage, aged 67.

Edward Wright Smitheman, M.D. University of Pennsylvania, Philadelphia, 1898; of Oil City, Pa.; a member of the American Medical Association; died at the home of his parents, in Philadelphia, November 27, from tuberculosis, aged 37.

William D. Stumbaugh, M.D. Baltimore University, 1897; of Lacona, Ia.; died in that place, November 21, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while mentally deranged, aged 53.

Harry Milton Ferguson, M.D. Rush Medical College, 1890; of Morris, Ill.; a member of the American Medical Association and secretary of the Grundy County (Ill.) Medical Society; died November 19, from rheumatism, aged 43.

Maurice Francis Sullivan, M.D. Dartmouth Medical School, Hanover, N. H., 1886; for many years a practitioner of Southington, Conn.; died at his home in Brooklyn, N. Y., November 29, from cirrhosis of the liver, aged 48.

D. L. Benson, M.D. St. Louis Eclectic Medical College, 1883; died suddenly in a store near his home in Mountain Grove, Mo., November 23.

John F. Cherrington, M.D. Marion-Sims College of Medicine, St. Louis, 1895; died at his home in Denver, November 27, from the effects of poison, believed to have been self-administered with suicidal intent, aged 48.

H. J. Salley, M.D. Medical College of Georgia, Augusta, 1885; formerly president of the Bank of Salley, S. C., and a member of the board of education; died at his home, November 22, from cerebral hemorrhage, aged 52.

William Campbell (license, years of practice, Illinois, 1878); for many years a practitioner of Equality, Ill.; died at the home of his son in Danville, Ill., November 20, from accidental strangulation, aged 70.

Carlisle Milton Southard, M.D. Ohio Medical University, Columbus, 1902; a member of the Ohio State Medical Association; died at his home in Zanesville, O., November 21, from heart disease, aged 37.

Eliphalet Comer Baldwin, M.D. University of Colorado, Boulder, 1897; a member of the legislature from Custer County in 1910 and 1911; died suddenly at his home in Westcliffe, November 26, aged 36.

Walter Henry Tobey, M.D. New York Homeopathic Medical College, New York City, 1874; died suddenly in his automobile in front of his home in Boston, November 23, from heart disease, aged 65.

Merchant Charles Fargo, M.D. Rush Medical College, Chicago, 1912; intern in the House of Correction Hospital; died November 26, from shock, two days after an operation for hernia, aged 27.

Richard J. Brady, M.D. Jefferson Medical College, 1909; of Hastings, Minn.; deputy coroner of Dakota County; died in St. Johns Hospital, St. Paul, November 26, from pneumonia, aged 28.

Henry Diers, M.D. St. Louis College of Physicians and Surgeons, 1882; for twenty-five years a practitioner of Kansas City, Mo.; died at his home, November 28, aged 78.

Ernest Duval, M.D. Laval University, Quebec, 1884; formerly a member of the city council and school board of Rochester, N. H.; died at his home, November 23, aged 52.

Charles W. Hume, M.D. Detroit (Mich.) Medical College, 1876; of Corunna, Mich.; died in the Petoskey (Mich.) Hospital, November 22, from heart disease, aged 63.

Alexander W. Gray, M.D. University of Tennessee, Nashville, 1890; for fifteen years a practitioner of Pauls Valley, Okla.; died at his home, November 15, aged 58.

Eva Viola Mead, M.D. University of Buffalo, N. Y., 1900; a member of the Medical Society of the State of New York; died at her home in Buffalo, November 20, aged 41.

Celestia D. Messinger, M.D. Bennett Medical College, Chicago, 1883; for many years a practitioner of Chicago; died at her home in Brooklyn, December 5, aged 70.

Nathan G. Reiff, M.D. Hahnemann Medical College, Philadelphia, 1883; died at his home in Albion, Ind., November 26, from acute disease of the throat, aged 53.

Alice Bunker Stockham, M.D. Chicago Homeopathic Medical College, 1882; formerly of Chicago; died at her home in Alhambra, Cal., December 2, aged 79.

John W. Barry, M.D. Eclectic Medical Institute, Cincinnati, 1905; formerly of Springfield, O.; died at his home in Cincinnati, November 25, aged 31.

Jesse Bertram Wiley, M.D. College of Physicians and Surgeons, Chicago, 1902; of Osmond, Neb.; died suddenly at Pierce, Neb., November 4.

Samuel McCloskey Cleveland, M.D. Hahnemann Medical College, Philadelphia, 1875; died at his home in Philadelphia, November 23, aged 75.

Dennis Jerome Sullivan, M.D. Bellevue Hospital Medical College, 1876; died suddenly at his home in Providence, R. I., October 20, aged 62.

Griffin T. Dailey, M.D. College of Physicians and Surgeons, Baltimore, 1884; died suddenly at his home near Romney, W. Va., November 22.

Russ R. Roberts (license, Arkansas, 1903); of Brookland, Ark.; died in Nettleton, Ark., November 18, from typhoid fever, aged 38.

Francis Findlay, M.D. University of Buffalo, N. Y., 1860; of Franklinville, N. Y.; died in Parkville, Mo., October 3, aged 78

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BAUMÉ ANALGESIQUE BENGUÉ

A physician writes asking for the formula of Baume Analgésique Benguè. This product is another of the "patent medicine"-"ethical-proprietary" type of nostrums. In Great Britain, it is advertised to the public as "A Wonderful Remedy for Rheumatism, Gout, Neuralgia." In this country, the exploiters find that space in cheap medical journals, reinforced by the aid of undiscriminating physicians, is a cheaper method of getting the stuff to the public. According to the statements of the manufacturers, Benguè's Analgesic Balm contains "menthol, salicylate of methyl and lanolin." When analyzed by the chemists of the British Medical Association, it was reported to have the following composition:

Menthol	18 per cent.
Methyl salicylate	20 per cent.
Lanolin, anhydrous	54 per cent.
A fat, apparently lard	8 per cent.

The estimated cost of the ingredients of a 50-cent tube of Benguè's Analgesic Balm, according to the British chemists, is 2½ cents. Evidently this imposingly named product is practically a lanolin ointment containing oil of wintergreen and menthol. Similar products are catalogued by various pharmaceutical houses under various names and with varying degrees of frankness concerning their composition. Two firms give the medical profession full details regarding the composition of their products: The H. K. Mulford Company who sell it under the name "Methyl Salicylate Ointment," and the Pitman-Myers Co. who name their product "Anodyne Balm, P-M Co." Some other firms are not so frank. Parke, Davis & Co., for instance, sell "a combination of methyl salicylate and menthol with a lanolin base" under the name "Analgesic Balm," but do not give the quantities of the ingredients; Frederick Stearns & Co. sell "Analgesic Cream, Stearns" without giving the quantities; Nelson Baker & Co. sell "Anti-Neuralgic Ointment," and no quantities are given.

THE EVOLUTION OF A PROPRIETARY—LYSOL

Regarding certain proprietary preparations and their equivalents found in pharmacopeias or other standard works of reference, it is often questioned whether the proprietary is the original and the official preparation, the imitation or vice versa. As a general proposition, medicinal compounds and preparations are not born but evolved, as in the case of epinephrin, in which the credit of discovery belongs to no one person, but to several.[1] So it is often the case that the proprietary and official preparations may be based one on the other, while both are usually based on some preparation which antedates them. This is well illustrated by the proprietary preparation Lysol, the practical equivalent of which—liquor cresolis compositus—is official in the United States Pharmacopeia. After the discovery of phenol (carbolic acid) and the recognition of its germicidal value, it was gradually learned that other phenolic compounds occurring in the crude distillates from tar and wood were more efficient and less poisonous than phenol (carbolic acid). When this was discovered, attempts of course were made to utilize these higher and more efficient phenols, which meant that their insolubility in water had to be overcome. In these attempts there were efforts to form new compounds as well as a search for simple solvents. While the first failed, because these compounds were less efficient than the phenol from which they were made, a simple solvent was found in soap. The first attempt to utilize the solvent power of soap gave creolin, a mixture of the so-called crude carbolic

1. THE JOURNAL A. M. A., March 25, 1911, pp. 901, 910.

acid (really containing but little phenol and consisting largely of higher phenols along with inert hydrocarbons) with soap. This was followed in 1884 by Schenkel's discovery that a portion of this "crude carbolic acid" could be made soluble in water by treatment with soap. Schenkel was refused a patent on the ground that any soap manufacturer should be permitted to add phenol to his soap, but in 1889 a patent for a cresol-soap solution was granted to Damann, who used cresol, a constituent of "crude carbolic acid." The preparation was put on the market and has since been widely advertised under the proprietary name "Lysol."[2] It is thus seen that Lysol is a good example of the way in which manufacturers appropriate the discoveries of others, develop them and turn them to proprietary use.

The ill-deserved patent protection for Lysol happily expired long ago and the product can now be made by any one. In view of the non-descriptive character of the name "Lysol" and the danger in using such names in connection with potent and poisonous remedies, this cresol-soap solution has been admitted to pharmacopeias, not under the original name "Lysol," but under descriptive names such as that in the United States Pharmacopeia—"liquor cresolis compositus."

JIREH DIABETIC FOOD

"Can you give me any information as to the reliability of the claims of the Jireh Diabetic Food Company? The company claims to have treated the starch in the food in some way so that it can be taken by diabetics without increasing urinary sugar, and as the products made by the company are quite palatable they are preferred to the ordinary gluten flour."

This inquiry was received from Dr. E. P. Evans, South Milwaukee, Wis. The Jireh Diabetic Flour is one of those vicious and fraudulent products—of which there are many on the American market—that contain practically as much starch as ordinary flour but are sold under misleading names as safe products for diabetics. The law that made lying illegal has produced many changes in the Jireh advertising. To tabulate:

BEFORE	AFTER
"Jireh Diabetic Flour"	"Jireh Flour"
"Jireh Diabetic Foods"	"Jireh Diatetic Foods"
"Jireh Starch-*Changed* Foods"	"Jireh Starch-*Treated* Foods"
"No chemicals are used in the *change* of the starch."	"No chemicals are used in the *treatment* of the starch."

It is worth noticing that the Jireh concern has coined a word—"diatetic"—and uses it throughout its advertising matter. This word is used wherever the word "diabetic" formerly occurred in the Jireh circulars. It is doubtless in line with the general attempt to deceive the public without actually violating the letter of the law. The booklets sent out by the Jireh Company still contain a vast amount of pseudoscientific nonsense, although not so much now as they did a few years ago. The claim made by the concern that the starch in their flour and foods is so changed as to be harmless for the diabetic is a cruel falsehood. To quote from a report by Dr. A. L. Winton, Chief of the Chicago Laboratory of the Bureau of Chemistry, United States Department of Agriculture:

> The Jireh Diabetic Food Company designate their foods as "starch-changed," but our analyses and microscopic examinations do not indicate that the change, if any, is of a kind that renders the materials less objectionable for diabetic use.

As a matter of fact, Jireh flour contains practically as much starch as ordinary wheat flour. To be exact, Jireh flour contains 73.02 per cent. carbohydrates, while ordinary wheat flour contains about 75 per cent. Ordinary flour sells at the rate of about $3 a hundred pounds; Jireh flour sells for $11 a hundred pounds. These products were discussed in THE JOURNAL, Sept. 12, 1908, p. 932, and Nov. 21, 1908, p. 1799.

2. Pharm. Ztg., Oct. 14, 1908, p. 817.

Hygiene and Sanitation in the Industries.—The problems of sanitation and hygiene in industry are as individual and as difficult as are the questions of sanitation and hygiene in schools, or in municipalities, and the study of them is essential to the health of an industrial nation.—W. Talbot in *Am. Jour. Public Health.*

Correspondence

Cesarean Section from the Point of View of a Patient

To the Editor:—Early last fall when it became positive that I was pregnant and not suffering from the menopause or a pseudocyesis I had to consider seriously the outcome to myself and to the child.

The thought of a long tedious labor with extensive perineal repair and, if forceps became necessary, the probable death of the much-wanted little one was not pleasant to contemplate and led me early to look up carefully the subject of cesarean section, which I selected for the following reasons: age 41; first pregnancy; measurements small; the probability in an elderly primipara of the baby being a boy with a large head like his father; the better chance for a living baby; the elimination of perineal tears with the resulting invalidism, and finally the small mortality to both mother and child when the operation is undertaken just before labor begins.

Having settled the matter of cesarean section definitely in my own mind I found a surgeon who coincided with my views, especially when the later examinations showed a malposition of the child. This decision made for peace of mind, as much as did the continuing of my active work during the entire time of carrying the baby.

On the morning of June 13, 1912, having had mild uterine contractions most of the previous night, I went to the hospital after a breakfast of shredded wheat, milk and soft boiled egg, reaching there about 10 a. m. I was immediately prepared in the usual way for a major operation, going within the hour to the operating-room, thus avoiding the long dreary wait through which a patient usually passes when entering the hospital the night before. At my own request I was allowed to have the anesthetic on the operating-table rather than in the anesthetic room, so as to lessen the possibilities of asphyxiating the baby. I counted only five breaths before I lost consciousness and knew nothing more until I reacted in my room at 2:30 p. m. My chart says that I had severe uterine contractions, which are vouched for also by my husband, but my only remembrance of this time was an inordinate thirst and my insistence on having a continuous supply of cracked ice, which was granted, and the three hypodermics of morphin and atropin, which were given me during the first night. Several days later desiring to cough I suddenly discovered the soreness of my abdomen and the presence of the incision. I had no nausea whatever until given an enema the night of the second day and again on the fourth day following a dose of Rochelle salts. I did suffer intensely from gas in the intestine but this was relieved, as a rule, by the passage of a rectal tube. At the end of the first week I was annoyed by drenching perspiration at night. In ten days the stitches, in three continuous sutures, were removed. At the end of two weeks I was out of bed; in eighteen days I was home and I went down-stairs on the twenty-third day. At no time did the temperature go above 100 F. and to that only on two days during the first week. With plenty of ice and orange albumin-water I fared nicely until soft diet was allowed on the third day, which was followed shortly by regular diet.

The child instead of being a large-headed boy was a moderately small girl weighing 6¼ pounds, and is at present doing well. My friends remarked on the nice appearance of the baby which no doubt was due to the lack of compression. The presence in the uterus of a number of fibroids probably caused the malposition of the child.

In closing I wish to express my appreciation of Dr. M. Louise Strobel and Dr. Albert Stavely for my exceptionally good condition at present and for permission to present this case.

MARTHA M. BREWER LYON, M.D., Washington, D. C.

State Supervision of the Feeble-Minded

To the Editor:—I believe that you have well summed up the situation in the last sentence in your editorial on "The Elimination of Feeble-Minded Strains" (Nov. 16, 1912, p.

801.) "Considered in all its various aspects it would appear that the most practical plan for the elimination of the feeble-minded strains should judiciously combine the methods of segregation and sterilization."

That there may be, however, such "judicious combination of segregation and sterilization" there must first be a census of all the feeble-minded in the state. The state committee on lunacy of each state should know exactly the names and location of all feeble-minded persons in the state, and should be charged with authority to compel any feeble-minded person to enter an institution whenever it deems that such action is for the public welfare; it should likewise have authority to detain a feeble-minded person in such an institution. In short, the state should have supervision over all the feeble-minded within its borders whether in institutions or living outside, and should decide which may live outside institutions and which must live inside institutions. At present this tremendously important question is largely decided by the parents and guardians of the feeble-minded—the very persons who are least fitted to give judgment on these questions. They naturally consider not the welfare of the state but that of the individual.

I believe such state supervision for the feeble-minded is most fundamental. When this has been established I would say with you, that "the most practical plan for the elimination of the feeble-minded strains should judiciously combine the methods of segregation and sterilization." But first of all the state must assume full authority over all feeble-minded within its borders.

THEODORE DILLER, M.D., Pittsburgh.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BRUSSELS CONFERENCE AND TREATY ON UNIFORMITY OF POTENT DRUGS IN THE PHARMACOPEIAS

To the Editor:—In the review of the "Digest of Comments" on the Pharmacopeia of the United States of America, Oct. 12, 1912, p. 1399, there appears reference to the treaty signed at Brussels and to a conference protocol. Please explain what is meant by the Brussels conference and the protocol and treaty.

PHYSICIAN AND PHARMACIST.

ANSWER.—In response to an invitation sent out by the Belgian government, at the request of the International Pharmaceutical Congress in Paris in 1900, delegates appointed by their respective governments met in Brussels in September, 1902, to consider the practicability of eliminating differences in the strength of certain potent medicaments bearing the same name in different pharmacopeias. The conference agreed on a protocol in the form of three articles. The first article included suggestions for uniform requirements for three chemical substances, nine drugs and thirty pharmaceutical preparations. The second article proposed three general principles to be observed in compiling the several national pharmacopeias. The third article suggested the expediency of adopting a normal drop counter for measuring out drop doses of potent liquid medicines. The protocol was signed by the delegates at the conference, and, after submission to the home governments, by their diplomatic representatives.

The treaty referred to was signed at Brussels, Nov. 29, 1906, by the diplomatic representatives of the following governments: Great Britain, Germany, Austria and Hungary, Belgium, Bulgaria, Denmark, Spain, France, Greece, Italy, the Grand Duchy of Luxemburg, Norway, the Netherlands, Portugal, Russia, Servia, Sweden, Switzerland and the United States. It is an agreement between the United States and the other governments respecting the unification of the formulas for potent drugs on the basis indicated in the protocol agreed on at the conference held in Brussels in September, 1902. This treaty represents the first practical step in an agitation continued for more than half a century, to bring about uniformity in the composition and strength of widely used medicaments. The efforts made previous to 1900 were directed to the development of an international pharmacopeia and were futile because they were too comprehensive. As an illustration of the practical results so far achieved it may be pointed out that, with the single exception of Great Britain, all the powers subscribing to the protocol of the Brussels Conference have now issued revised pharmacopeias and the total number of compliances with the requirements of Article 1 of the protocol has been increased from 129 in 1902 to 260 in 1910, while the points of non-compliance have been reduced from 131 in 1902 to fifteen in 1910; the present United States Pharmacopeia being responsible for no less than five of the latter.

Two important instances of the effects of this conference and treaty in securing uniformity in pharmacopeial preparations are the following: dilute hydrocyanic acid, which before the conference varied in strength in the different pharmacopeias from 1 to 10 per cent. of the acid (HCN) is now required to contain 2 per cent.; syrup of ferrous iodid, which formerly varied from 0.5 to 12.2 per cent. of the salt (FeI_2), is now required to contain 5 per cent.

DIAGNOSIS IN SUDDEN DEATH OF A CHILD

To the Editor:—A female child, aged 19 months, was suddenly taken ill at 7 in the morning and died in three hours. She had been well and in good health before and was not noticeably ill during the night. When called I found the child pale and limp, with an apparent paralysis of throat muscles, as she could with difficulty make a sound—saying, once or twice, "mam." There was considerable mucus blocking the upper air-passages. Respiration was irregular and slow but not jerky; temperature by axilla, 98. There was no contraction of any muscles, but relaxation was present. Pupils were wide. The child had not vomited or coughed. There was no cyanosis. Pulse was irregular and about 90, varying greatly, becoming much slower as the condition grew worse. The child died in thirty minutes after my arrival. Paralysis of respiration first appeared. I maintained the respiration artificially for several minutes, during which the pupils contracted and the child made a feeble effort at respiration. The pupils soon dilated again and the heart ceased beating.

I could obtain no history as to possible poisoning from without. The child, at its supper, had eaten a small amount of fresh sausage. This was from their own hogs, which they had just butchered under favorable conditions of weather. (There was no diarrhea or distention.) Father and mother and three other living children were healthy. Family history was negative, except that a year or two ago they lost a 4-year-old girl, who, they inform me, died after three or four hours' illness and with precisely the same symptoms. Can you diagnose the case or suggest a possible diagnosis?

GEORGE W. SHRIVER, M.D., Metz, W. Va.

ANSWER.—Without a necropsy it would be impossible to form a definite opinion with reference to the cause of death in this case. Three principal causes should be considered: botulism, infantile paralysis and lymphatism.

1. Botulism is suggested by the history of eating sausage. The symptoms of botulism are similar to those described, although usually not so acute. As the sausage is stated to have been fresh, the probability of sausage poisoning is diminished but cannot be entirely excluded.

2. Infantile paralysis sometimes produces death very rapidly, with paralysis of the throat muscles and of the respiration. The absence of all indications of infection makes this cause very doubtful.

3. Lymphatism is a term given to a condition in which the thymus gland is much enlarged and the individual possesses only slight resistance to causes of death, so that sudden death may occur after slight causes, such as slight operation and mild infection, or even when no cause can be assigned. The symptoms in such cases are various and this condition may have been operative in the case described.

A CASE FOR DIAGNOSIS: PROBABLY SMALL-POX

To the Editor:—Please diagnose the following case: A boy, aged 2, was taken suddenly ill, with a temperature of 104 to 104.5, pulse 120 to 140 and respiration 35 to 40. He was delirious, showed cerebral symptoms and rolled his head from side to side. The temperature remained high and the pulse was frequent till the fourth day, when an eruption similar to that of small-pox or chicken-pox appeared on the face and wrists but on no other part of the body. Temperature fell, but rose again in a few days and ranged from 99 to 101.5. The nose bled a little and seemed to be stopped up with something, as from a bad cold. On about the tenth day the nose discharged sanious pus. There was never any membrane in the throat nor any history of exposure either to diphtheria or to small-pox. The mother, who nursed the child, was vaccinated early in the child's illness and on the twenty-first day of the child's illness developed diphtheria.

Could patient have had both small-pox and diphtheria? If only diphtheria, account for the eruption, which was identical with small-pox except that it was scanty.

W. E. WHITESIDE, M.D., Flatwoods, W. Va.

ANSWER.—From the history given by our correspondent we should think it probable that the case was one of small-pox with a limited eruption. The discharge from the nose was in all probability due to small-pox vesicles on the mucous mem-

brane, inasmuch as most small-pox patients suffer from this symptom. It is, of course, possible that small-pox might be complicated by diphtheria, but we think that no such case is on record. Only a bacteriologic examination could determine this point. While the diagnosis of diphtheria in the mother's case may be correct, it is to be remembered that a membrane does not justify the diagnosis of diphtheria unless a microscopic examination has been made. Membranes in the throat may be produced by a number of organisms, including the streptococcus, pneumococcus, the organisms of Vincent's angina and others. A diagnosis of diphtheria should be based, whenever possible, on a bacteriologic examination of the secretions from the case.

DIFFERENCF BETWEEN SALVARSAN AND NEOSALVARSAN

To the Editor:—Why is neosalvarsan recommended not to be given subcutaneously, though it can be given intramuscularly? What are the clinical differences between salvarsan and neosalvarsan given subcutaneously? Are their physiologic actions the same?

JOSEPH A. THOMAS, M.D., Valdosta, Ga.

ANSWER.—The manufacturers of neosalvarsan warn against the subcutaneous use of the remedy on account of the danger of producing infiltrations. Aside from this, there seems to be no difference between the pharmacologic action of salvarsan and neosalvarsan. Neosalvarsan is much less irritating to tissue than salvarsan. The recommendation not to use it subcutaneously is due to the fact that any irritant drug is much more likely to cause sloughing when introduced subcutaneously than when put into the muscle. Absorption is also quicker from the muscle.

NOSTRUMS AND NEPHRITIS

To the Editor:—I have under my care a patient with chronic parenchymatous nephritis. Microscopic examination shows occasional epithelial casts, with hyaline and granular casts. The patient feels well and appears to enjoy the best of health. Please give me your opinion on the use, in such a case, of the lymph injections put out by the Animal Therapy Company of Chicago, from whom I have just received a supply of literature.

S. T. D.

ANSWER.—The Council on Pharmacy and Chemistry took up for consideration the "Lymph Compound R-H," and "Orchitic Fluid Tablets," sold by the Animal Therapy Company and refused them recognition.

The treatment of a case of chronic parenchymatous nephritis is a task requiring the best judgment and the greatest knowledge that the physician can command. From the first his aim should be to do no harm, and with this in view he will recognize that since we do not know the cause of this disease, and since we are unable to influence the essential process in the kidney, the administration of a remedy capable of doing harm should be undertaken only under the clearest indications. It is probable that the remedy proposed, containing, it is asserted, a mixture of foreign proteins, might injure healthy kidneys, to say nothing of sick ones. It is well known that foreign proteins, such as the white of egg, if they enter the circulation unchanged, are excreted by the kidney and are liable to produce serious irritation, which in the case of parenchymatous nephritis might easily aggravate the existing condition and frustrate all other efforts at a cure. More especially is it imperative to do no harm when, as in the case reported by our correspondent, the patient appears to be in good health. Two questions should be raised in that case. First, is there any evidence that the occasional excretion of a few casts, whatever may be their variety, is actually doing the patient any harm? And second, since there are no symptoms, what possible improvement could be expected from treatment? It is admitted that we have no remedy which can effect an essential change in the condition of the diseased kidney. What must be done in such a case is to spare the kidney—to require of it the minimum of functional activity. In such a case, the physician who introduces an animal protein, foreign to the human system, would be taking a serious responsibility. The chances are that it would do harm; how great, no one can tell. If the physician can really make up his mind to experiment at the risk of the life of his patient, this case appears to be one unusually favorable to the manufacturer of the serum. There are chances that the diagnosis may be incorrect and that such a condition of the urine does not indicate a serious condition of the kidney. It is frequently the case after an acute infection, or some similar irritation, that the kidney continues for some time to excrete albumin and casts, but the condition eventually clears up. In such a case, if the serum did no harm it would be given the credit of curing the patient, who recovers in spite of it. It is a little unfortunate, however, for the purpose of such demonstration that the patient is said to feel well. If only he could be persuaded that he has a serious disease so that he might be somewhat depressed mentally, the effect of the cure would be more remarkable!

If the physician to whom such a patient comes for advice, instead of taking the wise course of seeking reliable information, were to take at their face value the statements of interested commercial manufacturers—if he were to administer this unknown and dangerous remedy, the effects of which he cannot predict—he would commit a breach of trust more culpable than the most vicious attempts of the nostrum-maker to mislead the physician and the public.

LITERATURE ON MALARIA

To the Editor:—We are doing the postgraduate course and are beginning on the third month of the second year—diseases due to animal parasites. Can you furnish me with or refer me to a library where I can get the most recent articles on malaria?

A. R. CARTER, M.D., Murphysboro, Ill.

ANSWER.—

Harrison, W. B.: Prevention and Treatment of Malaria in the Negro Race Under Delta Conditions, *Mississippi Med. Month.*, October, 1912; abstr. in THE JOURNAL, Oct. 26, 1912, p. 1573.

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Jackson, T. W.: Malarial Hot-Bed Within Sight of National Capitol, *South. Med. Jour.*, September, 1912; abstr. in THE JOURNAL, July 27, 1912, p. 1299.

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Hand, A.: Fever: Malaria: Quinin, *South. Med. Jour.*, September, 1912.

Malaria and the Development of the South, editorial, THE JOURNAL, Sept. 14, 1912, p. 885.

Bass, C. C.: Successful Cultivation of Malarial Plasmodia, THE JOURNAL, Sept. 21, 1912, p. 936.

Cultivation of Malarial Plasmodia, editorial, THE JOURNAL, Oct. 12, 1912, p. 1381.

White, J. H.: Eradication of Malaria, *South. Med. Jour.*, August, 1912; abstr. in THE JOURNAL, July 27, 1912, p. 297.

Henson, G. E.: Possible Etiologic Factors in Malarial Recurrences; Significance of Such Cases and Their Treatment, *South. Med. Jour.*, August, 1912; abstr. in THE JOURNAL, July 27, 1912, p. 299.

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Thomson, D.: Variations in Numbers of Leukocytes and Crescents in Malaria; Destruction of Crescents; Conclusions Regarding Prevention of Malaria by Administration of Quinin, *Ann. Trop. Med. and Parasitol.*, July, 1912; abstr. in THE JOURNAL, Sept. 14, 1912, pp. 904, 905.

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Rowley-Lawson, M.: Cause of Malarial Anemia and the Intravascular Migrations of the Malarial Parasite, *Arch. Int. Med.*, April, 1912, p. 420; abstr. in THE JOURNAL, May 4, 1912, p. 1398.

Craig, C. F.: Is Hemoglobinuric Fever a Manifestation of Malaria or a Disease Sui Generis? *Arch. Int. Med.*, January, 1911, p. 56; abstr. in THE JOURNAL, Feb. 25, 1911, p. 621.

Brem, W. V.: Studies of Malaria in Panama: I. Clinical Studies of Malaria in the White Race, *Arch. Int. Med.*, December, 1910, p. 646; abstr. in THE JOURNAL, Jan. 14, 1911, p. 155; II. Treatment of Blackwater Fever, *Arch. Int. Med.*, February, 1911, p. 153; abstr. in THE JOURNAL, Feb. 18, 1911, p. 925; III. Etiology of the Erythrolytic Hemoglobinuric Type of Blackwater Fever, *Arch. Int. Med.*, February, 1912, p. 129; abstr. in THE JOURNAL, March 19, 1912, p. 731; IV. Relation of Malaria to Other Diseases, with Especial Reference to Dysentery, *Arch. Int. Med.*, June, 1912, p. 698.

LITERATURE ON SPRUE

To the Editor:—Please refer me to the most important literature on the subject of sprue.

CHARLES E. STEWART, M.D., Battle Creek, Mich.

ANSWER.—The following may be referred to:

Macdonald, W. C. C.: Sprue and Ankylostomiasis; Treatment, *Australasian Med. Gaz.*, July 20, 1911; abstr. in THE JOURNAL, Sept. 16, 1911, p. 1013.

Burnet, J.: Are Pellagra and Sprue One and the Same Disease? *Med. Press and Circular*, Aug. 16, 1911; abstr. in THE JOURNAL, Sept. 16, 1911, p. 1014.

The Investigation of Sprue, THE JOURNAL, Nov. 25, 1911, p. 1775 (London Letter).

Abel, E.: Sprue Plus Syphilis, *Deutsch. med. Wchnschr.*, Feb. 29, 1912, No. 9.

Low, G. C.: Blood in Sprue, *Jour. Trop. Med.*, May 1, XV, No. 9.

Ashburn, P. M.: Some Inquiries Regarding Sprue, *Bull. Manila Med. Soc.*, March, IV, No. 3.

Pratt, J. H., and Spooner, L. H.: A Study of Sprue, THE JOURNAL, July 20, 1912, p. 218

Begg, Charles: Sprue—Its Diagnosis and Treatment. W. Wood & Co., New York. Price, $2.

ANTIFREEZING MIXTURES FOR AUTOMOBILES

To the Editor:—What chemicals or mixtures are best suited for preventing freezing in the water reservoir of an acetylene generator, and in what proportion should it be added to the water to prevent freezing at 0 C. (32 F.) or —5 C. (23 F.)? Are alcohol and glycerin permissible? What is safe and non-interferent with the action of water on calcium carbid? An answer to the above will also be of service to those who desire to prevent the freezing of the radiators of standing automobiles.

EDMUND P. FOWLER, New York.

ANSWER.—As our correspondent says, information on this subject is not plentiful. In the following answer we quote rather freely from an answer to a similar query contained in the *Bulletin of Pharmacy* and from Meyer Brothers' *Druggist*, both of November, 1911. What follows refers more particularly to the prevention of freezing in automobile radiators, fire-extinguishers, etc. In the selection of a non-freezing solution for an automobile the action of the solution on the circulating system and also the capacity of the solution to withstand high and low temperatures are the points to be considered. Among the solutions used for this purpose are sodium chlorid and calcium chlorid solutions, glycerin, wood alcohol and denatured alcohol. When salt solutions such as calcium chlorid, sodium chlorid, etc., are used, two corrosive actions, chemical and electrolytic, take place. Calcium chlorid is apt to contain hydrochlorid acid, which if not neutralized will attack metals, and directions are usually given when this is used to neutralize by the addition of an alkali. Caustic solutions, however, are just as destructive as acid solutions, forming hydrates on the different metals composing the circulating system. This chemical action, though serious, is probably second to the electrolysis which occurs universally when salt solutions are employed, and causes a rapid eating away of the metals. Sodium and calcium chlorid solutions in the strength of 0.5 pound per gallon freeze at 24 and 29 F., respectively, and in the strength of 3.5 per gallon freeze at —8 F.

Glycerin makes a pretty good antifreezing mixture as it boils at an extremely high temperature and its freezing point can be reached only by artificial means. In addition to its cost, however, which is considerable, it has some objections. Unless chemically pure, it is apt to contain fatty acid, and it produces destructive chemical action. It also destroys rubber connections and after a short time becomes foul and requires frequent renewal. Glycerin has been recommended for use in fire-extinguishers, an addition of 3½ quarts to a standard extinguisher making a solution capable of withstanding —4 F., and 4 quarts a temperature of —10 F. This use would be similar to that in the acetylene generator and though a mixture of glycerin and water would probably not prevent the generation of gas, a considerable quantity of glycerin mixed with the water might retard it. We have no evidence on this point.

Wood alcohol and denatured alcohol are good agents for this purpose. Wood alcohol has been stated to have a slight tendency to produce formic acid which would in time corrode the metal parts. It also boils at a lower temperature than denatured alcohol and less of the latter is required, as the tendency to evaporate is less. Denatured alcohol is also much cheaper. Denatured alcohol has no corrosive action on any of the metals, and its ability to withstand cold is indicated by the fact that it freezes at about —160 F. It is manufactured by fixed formulas prescribed by the government and is therefore practically uniform. It contains no solid matter and does not require filtration. The freezing points of various mixtures of denatured alcohol with water are about as follows:

20 per cent. solution.....	10 F.
30 per cent. solution.....	—5 F.
40 per cent. solution.....	—20 F.
50 per cent. freezes at about	—35 F.

A mixture of denatured alcohol and water of sufficient strength to prevent freezing at anything but extraordinarily low temperatures probably will not very materially retard the action of the water in generating acetylene gas from the carbid.

It will appear from the above that denatured alcohol is probably the most satisfactory and cheapest medium for preventing freezing in automobile radiators, fire-extinguishers and gas generators.

EDITORSHIP OF SANGAMON COUNTY BULLETIN

To the Editor:—Thank you for your item, "Sangamon County Bulletin" (THE JOURNAL, Nov. 16, 1912, p. 1804), in which you speak of the editorial on appropriations for hog cholera but none for cholera infantum. You give me credit for editorship of the *Bulletin*. While I wrote the editorial mentioned, the editor of the *Bulletin* is Dr. H. C. Blankmeyer of Springfield, secretary of the Sangamon County Medical Society.

H. D. GRIFFITHS, M.D., Springfield, Ill.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, January 14. Chairman, Dr. W. H. Sanders.

COLORADO: State House, Denver, January 7. Sec., Dr. David A. Strickler, 612 Empire Building.

ILLINOIS: Coliseum Annex, Chicago, January 22-24. Sec., Dr. James A. Egan, Springfield.

INDIANA: Room 57, State House, Indianapolis, January 14-16. Sec., Dr. W. T. Gott, State House.

MINNESOTA: Pathological Institute, University of Minnesota, Minneapolis, January 7. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

NEW HAMPSHIRE: Concord, December 17-18. Regent, Mr. H. C. Morrison, State Library.

NEW MEXICO: Santa Fé, January 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: January 28-31. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH DAKOTA: Grand Forks, January 7. Sec., Dr. G. M. Williamson.

OKLAHOMA: Oklahoma City, January 14. Sec., Dr. John W. Duke, Guthrie.

OREGON: Portland, January 7. Sec., Dr. E. B. McDaniel, 702 Electric Building.

RHODE ISLAND: State House, Providence, January 2. Sec., Dr. Gardner T. Swarts, State House.

SOUTH DAKOTA: Watertown, January 8. Sec., Dr. L. G. Hill.

UTAH: Salt Lake City, January 6-7. Sec., Dr. G. F. Harding, 310 Templeton Building.

VERMONT: Montpelier, January 14-16. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, December 17-20. Sec., Dr. Herbert Old, Norfolk.

WASHINGTON: Spokane, January 7-12. Sec., Dr. F. P. Witter, Traders' Block.

WISCONSIN: Milwaukee, January 7-9. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

Reorganization of the Medical Department of the University of California

At a meeting of the regents of the University of California in December, 1911, the committee on Medical Instruction recommended that the departments of the medical school in Berkeley and San Francisco be brought together in San Francisco as soon as possible; that the clinical years be put on an academic basis, and that a proper teaching hospital and proper laboratories be provided. It was declared to be the regents' desire to establish a medical school of the highest standard.

Official information is received that at a meeting in April, 1912, on the recommendation of the medical faculty, the following plan of reorganization was adopted:

Clinical instruction in the medical school is to be carried on in three main departments.

1. Gynecology and Obstetrics: It was decided to put this department on an academic basis at once and to allot full academic salaries for a professor and an assistant.

2. Medicine: This department to include pediatrics, neurology and dermatology. This department cannot as yet be placed on a full academic basis, but the payment of assistants for the current year has been provided for.

3. Surgery: This department to include orthopedics, urology, ophthalmology, rhinology, otology and laryngology. As with medicine, there were not sufficient funds available this year to put the department on a full academic basis, but three paid assistants have been provided for.

In addition to the main departments, the work of the hospital pathologist was reorganized and an additional assistant professor of pathology was secured.

In accordance with the plans adopted by the regents, a movement is on foot to provide a new university hospital. The present plans aim at four units of forty or fifty beds each, to be devoted respectively to surgery, medicine, diseases of women and diseases of children. Money has already been given ($350,000) by private persons to build and equip the departments of medicine and children's diseases. In order to carry on the work in the present buildings, the regents have granted $20,000 for alterations in the hospital for accommodation of clinics and for equipment of clinical and pathologic laboratories. A children's ward has been added in the hospital.

New Hospital Dedicated

The new teaching hospital of Meharry Medical College, the George W. Hubbard Hospital, was dedicated Nov. 29, 1912. Addresses were given by a number of prominent men who are interested in the advancement of negro education. The total cost of the building was about $40,000. It is a brick structure three stories in height including the basement and comfortably provides accommodations for seventy-five patients, or 100 patients in case of emergency. It was named in honor of the venerable dean of the Meharry Medical College.

Nevada November Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 4-6, 1912. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed and 1 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Jefferson Medical College	(1910)	86.5
Laval University, Quebec	(1901)	78.3
College of Physicians of Ireland	(1885)	93.2

FAILED

Ohio Medical University	(1904)	63.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital, Chicago	(1890)	Illinois
Jenner Medical College	(1903)	Illinois
Hospital College of Medicine, Louisville	(1905)	Kentucky
Medical School of Maine	(1896)	Maine
Baltimore Medical College	(1908)	Maine
Univ. of Minnesota, College of Med. and Surg.	(1911)	Minnesota
St. Louis College of Physicians and Surgeons	(1895)	Iowa
Jefferson Medical College	(1898)	Penna.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE OUTLOOK ON A NATIONAL DEPARTMENT OF HEALTH

The most promising feature of the campaign for national health organization is the growing understanding of the problem on the part of influential men outside of the medical profession. THE JOURNAL has repeatedly pointed out that a national department of health would have and could have nothing to do with the individual practice of medicine; that it could have no relation to "schools" of medicine; that it could not affect the individual rights of any one, and that its functions would be almost entirely educational and simply an expansion and coordination of the work already being done by existing bureaus and divisions now scattered in different parts of the executive department. Evidently the truth of these facts is being realized by all except those who are too ignorant or too prejudiced by partisan bias to appreciate the facts, or by those who are too much influenced by selfish considerations to desire the passage of the measure for the public good. In last week's issue of the *Outlook* appears a splendid editorial on this subject. It presents such a calm, accurate and well-considered discussion of the subject as to justify reprinting the greater part of it. After discussing the difference between our private and our public interest in health matters the *Outlook* says:

"There is no question of the right of the federal government to conduct such a department. It has as much right, for example, to put up barriers against disease as it has to put up barriers against goods of foreign manufacture. Moreover, it is exercising its right already through various disconnected agencies, such as the Public Health Service and the officials who are engaged in the enforcement of the pure food law. The question is not whether the federal government shall exercise the right or not, but whether it shall exercise that right intelligently and effectively by means of a single, unified, administrative body devoted solely to matters of health.

"Suppose such a department were established, what would its functions be?

"In the first place, there should be no misapprehension as to what those functions would not be. The federal Department of Health would not be concerned with the treatment of individual cases of illness. It would not have anything to do with the 'healing art.' The officers of such a department would not be engaged in making sick people well.

"Unfortunately, some of the advocates of such a department or service have done much to create a wrong impression on this point. For example, the national platform of the Progressive party, in its plank favoring the 'union of all the existing agencies of the federal government dealing with the public health into a single national health service,' adds the phrase: 'without discrimination against or for any one set of therapeutic methods, school of medicine, or school of healing.' The platform might as well have opposed discrimination against or for any school of theology. With the work of such a Department of Health, so-called therapeutic methods, schools of medicine, or schools of healing, have nothing whatever to do. One might as well say that in establishing the Bureau of Chemistry there should be no discrimination against or for the practice of alchemy; or in the work of the Geodetic Survey there should be no discrimination for or against astrology. The Bureau of Chemistry is concerned only in ascertaining and acting on the facts of the science of chemistry. The Geodetic Survey has only to take into account the scientific work of geographers, mathematicians, and astronomers. And so the sole basis of such a Department of Health as is proposed should be, and must necessarily be, the facts of science as ascertained by the scientific methods of the laboratory. As a matter of fact, there is no confusion regarding this. It must be remembered that there is nothing essentially new so far as the nature of the work itself is concerned. It should not be forgotten that it was the United States government which carried on the investigations that resulted in the expulsion of yellow fever from the Canal Zone. The federal government did not engage in curing people, except in so far as it employed physicians to care for those for whom it was directly responsible, as it employs physicians and surgeons in the Army and Navy. So far as the public is concerned, its work had nothing whatever to do with methods of therapeutics or schools of healing. It was a scientific work as firmly based on the facts of science as the engineering work in the construction of the canal and its locks. It was an error to introduce the question of schools of healing into the proposal for a unified public health service or department, and it should not be repeated. The one form of discrimination which such a department should practice should be against the unscientific, and for the methods of the ascertained facts of science.

"The primary function of such a Department of Health is that of acquiring and distributing information. In other words, it should do for the health of the people what the Department of Agriculture is doing for the agriculture of the people. The officials in the Department of Agriculture have at no time attempted to tell farmers how they must plow their land or sow their seed. The Department of Agriculture is continually studying the question of soil, of seed, of animal life, and of agricultural methods, and is storing up and tabulating this information. And then it makes this information accessible to those to whom it will be useful; it answers the queries of farmers; it sends out its instructors. This is just what such a Department of Health would chiefly do with regard to the health of the people. At present there are no uniform vital statistics for the United States. There is no means, for example, of accurately ascertaining what the death-rate in America is. . . .

"Secondarily, its function would be regulative. Now the United States government does to some extent establish health regulations. But only to some extent. To-day the nation at large must depend for protection against the invasion of cholera through the port of New York, not on its national servants, but on officials of the state of New York. It so happens that in the past the state of New York has done some exceedingly competent work in this respect; but the people of Ohio and of Pennsylvania and of Minnesota, and of other states where immigrants go, should not have to be dependent on the efficiency of the state government in New York to be adequately protected against the disease which may at any time become a menace to the whole nation by appearing at the port of New York. It is as much the function of the fed-

eral government to fortify the nation against foreign disease as it is to fortify the nation against foreign armies. It cannot do so adequately until a single, united body for that purpose is established as its instrument.

"The question whether such a body should be a Department with a Cabinet officer at its head, or a bureau erected in one of the departments, or an independent commission having no relation to any department, like the Interstate Commerce Commission, is not an unimportant question, but it is a secondary one. . . . It would be better, however, to have a bureau or an independent commission rather than not to have a unified body at all. The prime duty of Congress in the protection of the health of the American people is to unite the various disconnected, and sometimes conflicting, agencies of the government into a single body and to give it power: first, to acquire the necessary information; second, to make that information accessible to the public; and, third, to enforce generally and effectively such regulations as are now enforced by the federal government sporadically."

A PLEA FOR A SQUARE DEAL FOR THE PATIENT

Practitioners, says R. R. White (*Texas State Journal of Medicine*, November, 1912), should not become so interested in each other as to deprive the patient of his square deal.

"The daily press and popular monthly magazines are beginning the discussion of this fee-splitting business. The people have been kept in ignorance of the plan, or it could never have reached its present magnitude. Organized medicine has been negligent. Had the people been fully advised at the beginning of the practice they would themselves, as a matter of self-protection, have stopped it. They would have said to the family physician, 'I want to pay you for your services. I want to pay you for your examination and for your advice. If you have advised operation I want to pay you for that. If you have advised me to take one of my loved ones to a hospital for operation, and in your conscientious judgment as my physician, as the guardian of the health of my wife and children, as my friend and confidential adviser, you can add safety to my dear one by going with me to consult with the specialists we are going to employ to operate, then by all means go; give the specialist the benefit of your acquaintance with the family, the benefit of your observation and treatment of the case, and render me your bill for the service. But, remember, doctor, you are working for me; you are the custodian of the health of my family, the question of life or death may depend on whether or not you have made a wise selection of the operator. Do not allow yourself to be influenced by personal friendship for some particular specialist; do not allow yourself to be influenced by some personal grudge, and, by all manner of means, do not take my sick to one who will pay you a fee for the favor. If the specialist is willing to pay you a fee for bringing him the patient, there is the beginning of a collusion between you, where, for financial reasons, you will protect the specialist and he will protect you, and the Lord, unaided by that greatest boon to suffering humanity—a loyal, conscientious family physician—will have to care for my child alone. Doctor, don't put yourself in a position to be unwisely, unwittingly or selfishly influenced. You are in my employ; I will compensate you as best I can, and I want to know that I have received that to which I am entitled—your whole-soul, honest, conscientious advice and, irrespective of results, I will know that my friend, my adviser, my doctor, has given the patient a square deal.'"

White believes that whenever the people understand the question thoroughly it "will not be necessary for us to discuss it in medical meetings, for they will themselves condemn the practice of fee-splitting and stop it. As a matter of common sense, the people will know that their family physician cannot give them an unbiased opinion when he is being secretly paid for his advice by another, who is to profit thereby; and when they realize that such is the case, they will lose confidence in him and will employ a new family physician."

When the family physician takes his case to the specialist, White would have him say, "'Here is my patient; here is the history, here is the result of my treatment, my observations and conclusions. Make your examination and give me your advice as to operation or treatment. I have advised the family that my visit and consultation would be $25 (or maybe $100); that they should provide for that before paying you your fee; that my services were rendered first, and by priority should be paid first; that if they have not enough to pay us both they should give you a note for the balance due you.'

"Would this be fair to the specialist? To be sure it would, and all whole-souled men would approve it, and, best of all, it would be fair to the patient, for it would insure him that to which he is entitled—a conscientious, frank, business-like handling of his case. Those specialists who are paying commissions for their cases have manufactured a smooth, plausible story to repeat to the general practitioner, and the burden of the song is 'square deal' and 'live and let live,' but the square deal does not apply to the patient, and the live and let live is not meant for him; it is all for the doctor. If it means anything in particular to the patient, it may mean that he has been bartered as a piece of merchandise."

The substance of the whole question is that the secret division of fees, like secret rebates and commissions in the business world, is dishonest. If it was not, there would be no reason for keeping it secret. The general practitioner will be more sure of a "square deal" if he insists on all transactions between the patient, the consultant and himself being known to all.

Book Notices

GRUNDZÜGE DER PATHOLOGISCH-HISTOLOGISCHEN TECHNIK. Von Dr. Arthur Milberger, M.R.C.S. (England), L.R.C.P. (London). Paper. Price, 2 marks. Pp. 86. Berlin: Julius Springer, 1912.

The object of this little pamphlet is to select laboratory methods that have been found most useful in practical work, and disentangle them from the mass of procedure described in the large works on technic. As a result we have in the space of a few pages clear directions for performing the usual tasks of pathologic histology that are required in ordinary clinical laboratories. The choice of methods is for the most part good, and the directions are plain and easily followed. As the author recommends formaldehyd solution for almost everything, it would seem a wise precaution to warn his readers that constant use of this fixative often leads to serious dermatitis.

ELEMENTARY BACTERIOLOGY AND PROTOZOOLOGY. The Microbiologic Causes of the Infectious Diseases. By Herbert Fox, M.D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Cloth. Price, $1.75 net. Pp. 237, with 72 illustrations. Philadelphia: Lea & Febiger, 1912.

In this little book the author has endeavored to answer the question as to how and under what circumstances bacteria produce disease. The book is elementary in its scope, suitable for nurses, for instance, and beginners in general in the study of bacteriology. There is very little discussion of any technical matters. The book can be recommended as thoroughly reliable.

DIE MIGRÄNE. Von Edward Flatau. Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie. Herausgegeben von A. Alzheimer und M. Lewandowsky. Part II, Paper. Price, 12 marks. Pp. 253. Berlin: Julius Springer, 1912.

In this monograph the author has brought together the various disease-pictures commonly called migraine, and treated them under one heading. He discusses the subject under (1) the vulgar or simple, (2) the ophthalmic, (3) the epileptic, (4) the psychic, (5) the ophthalmoplegic, (6) the faciоplegic varieties of migraine. Though based on the literature of the world, the monograph is not mere compilation. On the contrary, the author has views of his own; for instance, he does not hesitate to infer a relation between migraine and epilepsy. Among the 500 cases of migraine which he had observed he found thirty-six with epilepsy either as an equivalent or as a complication. In the majority of his cases migraine occurred before the epilepsy developed and with its appearance the attacks of migraine either became less frequent or entirely disappeared. Further, he states, the more nearly symptoms approximate to the ophthalmic variety, the more likelihood is

there of epilepsy supervening. His discussion of the rather unusual type of psychic migraine is full and interesting. He found it present in a rudimentary form in about 26 per cent. of all his cases, manifesting itself as a mild depression. A patient of this type he pictures as an individual misanthropic and egocentric, who shuns society and narrows his mental horizon until he gradually becomes asocial, though still capable of performing his daily routine work. In his discussion of the nature of the disease-complex called migraine Flatau goes fully into the various theories advanced, but he himself leans to the view that the condition belongs to the family of metabolic disorders of which gout is a prominent member. Under treatment, conformably to the latter view, he advises among other things a diet free from purins and publishes a list of articles for those affected with migraine in which meats, fish, coffee, tea and cocoa are practically excluded. Of drugs he favors the lengthy administration of bromids, but omits to mention the routine prescription of a reliable preparation of cannabis indica in ascending doses, from which English and American neurologists have derived considerable success in a number of selected cases. After following the author in his logical deductions with reference to etiology, pathology and diagnosis the sufferer from migraine will nevertheless seek in vain for something new to assuage his nerve-racking pain. The book on the whole is a meritorious one and deserves especial praise for its concise language and the absence of padding.

THE NERVOUS SYSTEM. An Elementary Handbook of the Anatomy and Physiology of the Nervous System. For the Use of Students of Physiology and Neurology. By James Dunlop Lickley, M.D., Demonstrator of Anatomy, University of Durham College of Medicine. Cloth. Price, $1.80 net. Pp. 130, with 118 illustrations. New York: Longmans, Green & Co., 1912.

This book owes its origin to the necessity that the student of modern psychology know the essential facts regarding the structure of the nervous system, though he need not trouble himself about details. As such facts are given in text-books of anatomy in too great detail and it would be necessary for the student to purchase the entire work, the author has endeavored to state in plain language the principal features of nervous anatomy and physiology so that the non-medical student can readily understand them. The purpose has been well carried out and the treatise is interesting and profitable reading for the medical man as well as for the layman. The author voices the hope that, while intended primarily for non-medical readers, the book may prove acceptable to the medical student for preliminary study. It might even be contended that the knowledge found in a simple text-book like this is as much as the average medical man will retain and that such a work thoroughly mastered might help the physician to retain clearer ideas of the structure of the nervous system than he acquires from the laborious study of more detailed treatises.

DENTAL STATE BOARD QUESTIONS AND ANSWERS. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Cloth. Price, $2.75 net. Pp. 428. Philadelphia: W. B. Saunders Company, 1912.

This book is said to be based on questions collected from lists published during the last few years in the various dental journals. The questions, therefore, are representative of those asked by state dental boards. It is asserted that questions which have been asked repeatedly and by the majority of dental examining boards have been included, followed in each instance with the answer given as briefly as was compatible with clearness. The book will doubtless be of service to those who are preparing for an examination for a license to practice dentistry.

THE IMPERIAL CANCER RESEARCH FUND. Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. Fifth Scientific Report of the Investigations. By Dr. E. F. Bashford, General Superintendent of Research. Boards. Price, 5 shillings. Pp. 94, with illustrations. London: Taylor & Francis, 1912.

This report is characterized by the same excellent publication, and the numerous splendid illustrations of J. R. Ford, as the preceding reports have been, and gives substantial evidence of the vigor and fundamental sanity of the investigative work being conducted under the fund. The articles here reported all deal with investigations on natural and acquired resistance of animals to experimentally induced cancer, under the following titles: "The Manifestation of Active Resistance to the Growth of Implanted Cancer," B. R. G. Russell; "A Cytologic Analysis of the Reaction in Animals Resistant to Implanted Carcinoma," C. Da Fano; "The Nature of Immune Reaction to Transplanted Cancer in the Rat," W. H. Woglum; "Immunizing Power of the Placenta, Blood, Embryonic Skin, Mammary Gland, and Spleen of the Different Species Against Carcinoma of the Mouse," S. Higuchi.

Medicolegal

Statutory Privilege and Its Waiver

(Studebaker vs. Faylor (Ind.), 98 N. E. R. 318)

The Appellate Court of Indiana, Division No. 2, says that Section 520 of Burns' Statutes of Indiana of 1908 provides that physicians shall not be competent witnesses as to matters communicated to them as such by patients in the course of their professional business, or advice given in such cases. This privilege may be waived by the patient, or those who stand in his place, or are authorized to represent him.

The reason for this statute is that communications may be made in the relation of physician and patient which a due regard for the privacies and decencies of life should protect from being exposed to the public. This privilege may be waived, and when the matters have been once published to the world, no reason remains to hold the privilege in force. The statute was not enacted to enable persons to avoid liability or to win a suit by making it difficult to obtain evidence, but was made in order to allow them to prevent certain private affairs from becoming public property. So it has been held in this and other states that, when a witness has been permitted without objection in a former trial to testify to privileged communications, the bar of privilege is waived, and the testimony cannot be excluded on that ground at a subsequent trial.

In this case all the heirs of a Mrs. Faylor sued appellant Studebaker to set aside a deed of conveyance of real estate made by her to the appellant, on the grounds that she was insane when the deed was made and the conveyance was obtained through fraud of the appellant. On a previous trial a medical witness was permitted, without objection from any one, to testify to information gained while a professional relation existed between him and Mrs. Faylor. If the appellant would otherwise have had the right to object to the admission of the evidence on the second trial, such right was waived by failure to object at the former trial, thus permitting the communications to become public.

Under authorities cited, the right to waive the privilege of confidential communications, after the death of Mrs. Faylor, in litigation affecting her estate, was lodged in those who represented her and stood in her place. It is generally conceded that heirs may waive this privilege. The heirs or devisees seeking to overthrow a will may not waive it, however, as against other heirs or devisees. It is unquestioned that the administrator has the power to waive the privilege in order to conserve the interests of the estate. And, as before said, when once the matters ascertained in a privileged relation are published to the world without objection, no reason remains to uphold the bar of privilege.

Cross-Examination of Experts with Reference to Books

(Allen vs. Boston Elevated Railway Co. (Mass.), 98 N. E. R. 618)

The Supreme Judicial Court of Massachusetts sustains exceptions to a verdict for the plaintiff for personal injuries on account of error in the cross-examination of a medical witness for the defendant because it says that the evidence thus obtained was plainly incompetent, coming, as it did, under the settled rule that neither medical books, though of recognized authority, nor the opinions of medical experts unless testified to by themselves as witnesses, can be received as evidence. The

court says that the cross-examination was directed mainly to showing what the opinions of other medical authorities were as to the effect of the plaintiff's alleged injuries in causing the disease called "diabetes mellitus." On the defendant's first objection to a reference to a book written by Dr. Davenport, the judge expressly ruled that the witness might be asked if certain authorities did not express certain views and if that did not change his opinion, although the judge said also that the jury were not to consider what was said in Dr. Davenport's book. The defendant did not then except, and the cross-examination proceeded on the same line. Finally the plaintiff's counsel asked whether the witness was familiar with any authorities which said that diabetes mellitus might come as the result of a blow, and the defendant then saved an exception (which afterward was renewed) to that line of examination. The witness was asked also about books by Naunyn and Forchheimer, the questions being framed from a medical book written in German, which the counsel held in his hand. The whole effect of the cross-examination was to impress on the minds of the jurors the idea that certain writers were men of eminence in medicine, whose opinions were of value, and that their opinions differed from the opinion to which the witness had testified. The objectionable cross-examination, against the repeated objection and exception of the defendant, was continued so that, as reported, it covered more than five pages of the exceptions. Similar questions were put in different forms as to different treatises, ending with general questions calling for and eliciting answers as to any text-books that might agree with the claim of the plaintiff, and accompanied by the display of several medical books on the table of the counsel. The effect and as may reasonably be supposed the purpose of counsel were to bring before the jury the opinions of others who were, it was suggested, persons skilled in such matters, and to lessen the weight of the witness' testimony by showing that their views were different from his. The court would hesitate to say that even a broad instruction to the jury to disregard wholly the evidence thus obtained would have cured the injury which had been caused to the defendant. Justice required that there should be a new trial of the whole case.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Cleveland, Dec. 31-Jan. 2.
American Physiological Society, Cleveland, Dec. 26-28.
Southern Surg. and Gynec. Assn., Old Point Comfort, Va., Dec. 17-19.
Western Surgical and Gynec. Assn., Cincinnati, Dec. 20-21.

SOUTHERN MEDICAL ASSOCIATION

Sixth Annual Meeting, held at Jacksonville, Fla., Nov. 12-14, 1912

(Concluded from page 2091)

The Surgical Importance of the Breast

DR. E. DENEGRE MARTIN, New Orleans: An important duty is the instruction of patients as to the care of the breasts. The expectant mother or nursing woman should be taught how to care for the nipples, for infection through a fissured nipple will not only lead to abscess and sometimes to complete destruction of the gland, but also will leave scars to light up at some future time into inoperable carcinomas. I have operated on more than 150 patients with cancer of the breast. Three-fourths of the cancers were in colored women and were already malignant when operated on. I am not able to-day to point out more than four colored patients who have lived over a period of six years. Twelve white patients lived, the percentage being larger because they were seen earlier. Every week we turn away from our clinics cases too far advanced for even temporary relief. The surgeon who picks his cases will of necessity secure the best results, but the benefit should always be given to the patient, even if it means but a short prolongation of life. The mortality from operations is less than 2 per cent., and in my operations, with 50 per cent. of advanced cases the mortality is less than 1 per cent. These statistics are improving daily, as far as cures are concerned. Still, the prevalence of cancer is on the increase, and we can and must reduce it.

Extra-Uterine Pregnancy

DR. J. HUGH CARTER, Memphis, Tenn.: We should operate in all cases as soon as possible, as we never know when hemorrhage is going to take place, even if it has seemingly been stopped. As to what operation should be done, I do not believe one can say until the abdomen has been opened. Then the operator should do whatever he thinks best. Each patient and the conditions found in the abdomen must be dealt with individually. I would insist on a careful diagnosis of each case of suspected tubal pregnancy as early as possible, thereby giving the patient a much better chance for her life.

Clinical Value of the Tuberculins in the Diagnosis and Treatment of Tuberculosis

DR. WALLACE J. DUREL, New Orleans: In my personal observation of several hundred cases, it is evident that of eighty patients who were treated previous to 1909, of all those discharged as apparently well, and who were given the tuberculin test, the test proving negative, not one relapsed; yet many of the patients showed a distinct positive reaction on their discharge, and afterward relapsed, three dying since. This evidence convinces me that repeated tuberculin tests will show whether treated and supposedly cured patients are free from any tuberculous focus, active or latent, regardless of its size or location, and that the negative reaction means more than a mere tox-immunity in such cases.

The clinical therapeutic value of the tuberculins is exemplified in the tabulated records of eighty cases of tuberculosis treated in Louisiana previous to 1909. In this report, in the first stage, 13 cases were treated, with recovery in all, and no relapse until 1912. In the second stage, 16 cases were treated, with recovery in 15, and arrest in 1. In the third stage, 30 cases were treated, 14 apparently well, and 16 arrested. In 1912, 1 of the apparently well patients had relapsed, and 1 died. Of the arrested cases, 3 patients relapsed and 2 died. Of the third stage, 21 patients were treated; not one recovered, 9 were arrested, 10 were improved, and 2 non-improved. In 1912, 16 of the 21 patients have died. These figures teach the practical lesson that the early-diagnosed cases of tuberculosis can be treated with far better and more lasting results than the advanced cases.

Serum Treatment of Cerebrospinal Meningitis

DR. CHARLES C. GREEN, Houston, Texas: In Houston we had 182 cases with seventy-four deaths, a death-rate of 40.6 per cent., including those treated with serum and those treated without it. Out of the total number of cases treated, twenty-nine did not have the serum, consequently the death-rate runs up rather high, twenty-one deaths out of twenty-nine cases, giving the enormous death-rate of 72.4 per cent., which, although high, is even lower than the usual death-rate when the serum treatment is not used. But of the 153 cases treated with serum, fifty-three patients died, giving a death-rate of 35.5 per cent., a reduction of 37.9 per cent. in favor of the serotherapy. I have taken the number of cases that had the serum within twenty-four and thirty-six hours after the onset, and our death-rate in these was only a fraction over 20 per cent. I believe that if all these cases could be treated by men who are familiar with this procedure, the death-rate would be still lower.

Gangrenous Tonsil

DR. U. S. BIRD, Tampa, Fla.: So rare is this disease that it is not a text-book or reference-book subject. Five cases only could be found in medical literature, all of which were fatal. In addition to these I have knowledge of five cases, four in my own patients and one in the practice of a brother physician. These five cases, as compared to the five previously reported, suggest some interesting conclusions. In the first five cases the mortality was 100 per cent. The cases I report

include two deaths, but neither of these was due to gangrenous tonsil, which in these cases appeared to be an intercurrent condition, more or less due to the general depression that had rendered them vulnerable to such attacks. In my fourth case only were operative measures indicated. When a small area is involved and the general condition is good, instrumentation is indicated; but in great depression and extensive involvement, two conditions that seem to be associated, active interference may result unfortunately. Only one of my cases is of interest in connection with pathology, the noma bacillus being present.

Thrombophlebitis of Orbits by Ozena Bacillus; Death

DR. M. FEINGOLD, New Orleans: I saw a girl, aged 15, who had an edema of the upper and lower lid, so extensive that the eye could not be opened voluntarily. There was a hard infiltration through the upper lid to the depth of the orbit. The temperature was about 101 F. The patient denied that there had been any previous affection of the nose. An operation was immediately performed, and an extensive focus of sticky, grayish, gelatinous pus was found and evacuated. Necrotic bone was also discovered in the orbit. The patient stood the operation well and spent a comfortable night. The next day, however, pulse and temperature gradually rose and patient complained of pain in the head. Probing revealed no further focus, but the edema on the right side had increased, and dilated veins were visible over the forehead and nose. Atrophic retinitis was found in each side, with crusts and pus in the middle meatus under them. On the following day the Killian operation was performed, and pus was found in the frontal and sphenoidal sinuses. After the operation the patient gradually grew worse and died on the night of the following day. The temperature had reached 106.1 F., with profuse perspiration and labored respiration. The pus was found to contain a pure culture of *Bacillus mucosus capsulatus*. No post-mortem was obtained. The interesting points in the case are the facts that a sinus affection may be latent for some length of time, and that orbital affection may be brought about by the affection of the adjoining nasal cavities.

Diagnosis of Plague

DR. R. L. WILSON, Charleston, S. C.: In plague work great care should be taken in handling infected animals, tissue, cultures and other material. Even persons accustomed to bacteriologic laboratory work have to be reminded of danger, as several laboratory cases of infection are on record. The principal things to look out for are fleas from animals, skin abrasions, soiling of fingers, using of pipets and smoking. The principal points in diagnosis are: (1) typical lesions, especially characteristic buboes; (2) production of the disease in animals by inoculation; (3) the unmistakable presence of the plague bacillus in smears, cultures and in inoculated animals.

Symptoms and Clinical Diagnosis of Bubonic Plague

DR. J. BIRNEY GUTHRIE, New Orleans: The appearance of the patient sick with bubonic plague is somewhat similar to that of one under the influence of alcohol. The face is swollen, the eyes injected. There is a general loss of coordination, with staggering gait and thick and stammering speech. The speech disturbance frequently extends into convalescence, and with persistence of lymphatic enlargement and recent scars of suppurating buboes, may furnish the clew to identification of a previously unreported case. The recognition of cases of bubonic plague where it is known to exist presents small difficulty to the physician. It is the identification of the first cases, especially if they are of mild type, which will present the severe problem in diagnosis. In a suspicious case careful and continuous observation of the superficial lymph-nodes should be maintained, and puncture with the needle and examination of aspirated fluid made by smears and culture methods.

Finally, the early identification beyond any doubt of bubonic plague depends on the microscope. It is the duty of the attending physician to submit to the bacteriologic laboratory slides made from the fluid aspirated from every suspicious bubo and from sputum in every case of pneumonia showing more than ordinary depression at the outset, with a bright red sputum instead of the typical rusty sputum of ordinary pneumonia. The services of the public bacteriologist should be available. Possibly it might be wise to require the specimens to be submitted. The only hope of limiting an outbreak is that of a prompt diagnosis of the disease. To-day every seaport of the world is menaced by plague, and the menace will be still further increased by the opening of the Panama Canal. Therefore it becomes the duty of every one of us who practices medicine in a seaport to keep constantly in mind the possibility of encountering the disease. To this end examination of the superficial lymph-nodes during the progress of every acute febrile case becomes a matter of necessary routine.

Treatment of Plague

DR. ISAAC IVAN LEMANN, New Orleans: Our chief and first attention must be given to prophylaxis. Several methods of producing active immunity have been proposed. Haffkine, working in India in 1907, proposed his well-known prophylactic. This consists of a bouillon culture of the pest bacilli, killed by heat and phenolized so as to represent a 0.5 per cent. solution of phenol. The dose of this varies from 0.5 to 1 c.c., and in special cases as much as 20 c.c. are given. The reaction varies greatly in different individuals; as a rule, there is slight fever, malaise, with local swelling, and edema for twenty-four or forty-eight hours. Ten days later, a larger dose may be given, the size varying according to the reaction following the first dose. The protection afforded by the prophylactic is not absolute. When repeated several times it affords a relative immunity for some months. From 4 to 20 per cent. of the inoculated contract the disease and from 2 to 8 per cent. die. Passive immunization by means of serums derived from animals in which an artificial immunity has been created, has been used prophylactically and therapeutically. The immunity produced by immune serums is said to last but a few days. Aside from the specific treatment the management of a case of plague is entirely symptomatic. Treatment is inaugurated with a brisk calomel purge followed by a saline. The patient must be kept in bed in a well-lighted, well-ventilated room. The diet throughout the acute stage should be liquid, principally milk and water with the addition of alcohol in cases in which there is great prostration. Later a soft bland diet is permitted. In convalescence regard must be paid to the probability of change having occurred in the heart muscle and in the kidney. The buboes must be dealt with surgically.

Resolutions Adopted

The resolutions which are summarized below were offered, referred to the council, reported back to the association and adopted:

NATIONAL DEPARTMENT OF HEALTH

President-Elect Wilson's aid was asked "in securing the passage of the bill now before Congress to establish a department of public health, which will elevate the importance of human well-being to an equal plane with that of inferior animals, now protected by the almost paternal care of a 'Bureau of Animal Industry.'"

MALARIA COMMISSION

Congress was "urged to create a commission for the investigation of malaria, with a view to recommending" measures "efficient in extirpating the disease." "Such a commission should be amply provided with funds, and invested with liberal powers." "Details of medical officers of the Army, the Navy, and the Public Health Service should be . . . at the service of this commission.

PUBLIC INSTRUCTION

"Editors of newspapers and other periodicals published in the South, whether in town or country, are urged to join this crusade against the foes of health, happiness and prosperity by publishing gratuitously such articles and documents as will, in their opinion, advance the cause, and by the still more effectual means of editorial advocacy." A copy of this action was ordered mailed to every newspaper, magazine or other periodical within the geographic boundaries of the association.

FEE-SPLITTING

WHEREAS, It is stated that among some physicians there has developed a pernicious custom of commercializing the most intimate and sacred confidences committed to their honor, by referring their patient who needs special or expert treatment to specialists or surgeons who financially remunerate them for their reference, either by paying a commission or by dividing with the regular physician their fees as specialists or surgeons; and

WHEREAS, It is prejudical to individual physicians and to the medical profession at large to allow such injurious rumors to circulate unproved or unchallenged; and

WHEREAS, It is the duty of our profession to protect the honorable position we have won by generations of faithful, unselfish service; therefore be it

Resolved, By the Southern Medical Association, that we earnestly condemn such dishonorable dealings on the part of anyone professing the high calling of medicine.

Resolved, That we urge all state and county medical organizations vigorously to oppose such dishonorable dealings and to appoint investigating committees whose duty it shall be to learn whether any of their members are thus dishonoring their calling, and if any are so accused to summon them before a tribunal of their professional brethren to be acquitted or convicted of this crime against honor and humanity.

Resolved, That no guilty doctor, whether donor or recipient of such a fee or commission in any way, shape or manner, should be allowed to escape a suitable penalty, such as private reprimand, temporary suspension or public expulsion.

Resolved, That these resolutions be spread upon the minutes of this association and that a copy thereof be forwarded by the secretary to every state and county medical organization within the geographic limits defining eligibility to membership in this association.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

November, XXXIII, No. 11, pp. 625-686

1 Rural Hygiene. H. D. Pease, New York.
2 Salicylates in Treatment of Acute Chorea, with Report of Nine Cases. N. K. Fromm, Albany, N. Y.
3 Albany Hospital: Tenth Annual Report, Department for Mental Diseases, Year Ending Sept. 30, 1912. J. M. Mosher, Albany, N. Y.

American Journal of Insanity, Baltimore

October, LXIX, No. 2, pp. 267-468

4 A Layman's View of Care and Treatment of Insane in State Hospitals of New York. H. P. Bissell, New York.
5 Three Months Without and Three Months With a Social Service Worker in Mental Clinic at Boston Dispensary. L. V. Briggs, Boston.
6 State Care of Boston's Insane. H. P. Frost, Boston.
7 Immigration as Problem in State Care of Insane. J. V. May, Albany, N. Y.
*8 Korsakow's Syndrome, with Synopsis of Cases. F. B. Clarke, Chicago.
9 Laboratory Differentiation Between General Paralysis and Cerebrospinal Syphilis and Serology of Spinal-Cord Tumors. D. M. Kaplan, New York.
10 *Exciting Causes in Psychiatry. A. J. Rosanoff, Kings Park, N. Y.
11 Hereditary Ataxia. W. C. Sandy, Trenton, N. J.
12 Relation of Apraxia Problem to Psychiatry. I. H. Coriat, Boston.
13 *Statistical Study of Manic-Depressive Insanity, with Special Reference to Physical Illness as Etiologic Factor. T. A. Hoch, Worcester, Mass.
14 Some Technical Methods for Routine Examination of Brain from Cases of Mental Disease. S. T. Orton, Worcester, Mass.

10. Exciting Causes in Psychiatry.—The material of Rosanoff's study consists of 1,056 consecutive admissions to the Kings Park State Hospital. Two hundred and seventy-nine cases of imbecility, epilepsy, alcoholic psychoses, general paresis and other organic conditions are excluded from the study, leaving 777 cases. In 66.9 per cent. of these cases no cause has been assigned, and in 4 per cent. conditions have been erroneously assigned as causes: in more than half of the cases indications for commitment have arisen in the midst of an average environment and in the absence of occasion of special difficulty or strain. In 7.1 per cent. the psychosis has been attributed to alcohol; the further study of these cases has been postponed. In 2.6 per cent. the psychosis has been attributed to other physical causes: pregnancy, childbirth, lactation, traumatisms, surgical operations and acute infectious diseases. In 16.6 per cent. the psychosis has been attributed to psychical causes: business troubles, death or illness of relatives, love affairs, domestic troubles, etc., and in 2.8 per cent. to combinations of physical and psychical causes. In one-third of the cases in which pregnancy, childbirth, lactation, traumatisms or surgical operations have been assigned as causes the relationship between the alleged cause and the psychosis is merely one of accidental coincidence in time: there is no etiologic relationship.

The remaining two-thirds of the cases, however, leave no doubt of these factors being capable of causing insanity, although they do so infrequently. In many cases the manner of their action is obscure owing to insufficiency of data in the clinical histories; wherever more detailed data are available it appears that these factors act not as physical causes but through their psychical accompaniments.

Only in two cases out of a total number of 777 was the psychosis ascribed to acute infectious diseases; in one to typhoid and in the other to influenza. In the first case the anamnesis was furnished by a feeble-minded person and is not reliable; it would seem that the duration of the psychosis prior to admission was much longer than it was said to be, probably dating back a long time before the attack of typhoid; in the second case there is much discrepancy between the data obtained from the various sources, so that even the fact of the patient's ever having had an attack of influenza is not established. Excepting febrile and infectious deliria, Rosanoff says, the power possessed by the acute infectious diseases of producing insanity is at the most very slight and wholly questionable. Leaving aside the matter of complete separation of personal and environmental factors, the exciting causes of the forms of insanity considered appear to be invariably of a psychical nature; and the cases in which no causes are assigned do not differ essentially from others in etiologic mechanism; it so happens that in their histories there is no spectacular event to be recorded as "the cause."

13. Statistical Study of Manic-Depressive Insanity.—During a period of ten years, 703 patients with manic-depressive insanity were admitted to the Worcester State Hospital, out of a total of 5,706 patients, constituting 12 per cent. of admissions. Of this number 309, or 43 per cent., have, as far as is known, had only one attack. The fact that physical illness was found to be a cause in 24 per cent., or nearly one-fourth of the first attacks of manic-depressive insanity, Hoch points out to be significant, and of particular interest in the steady falling off of somatic causes in the succeeding attacks.

American Journal of Anatomy, Philadelphia

November 15, XIC, No. 1, pp. 1-117

15 Interstitial Granules and Fat Droplets of Striated Muscle. H. H. Bullard, New Orleans.
16 Fate of Jugular Lymph Sacs and Development of Lymph Channels in Neck of Pig. A. H. Clark, Baltimore.
17 *Chemical Nature of Certain Granules in Interstitial Cells of Testis. R. H. Whitehead, Charlottesville, Va.
18 *Comparative Study of Three Principal Regions of Spinal Cord in Series of Mammals. P. B. Bullard, New Orleans.
19 *Development of Cerebral Cortex. E. L. Mellus, Baltimore.

17. Chemical Nature of Certain Granules.—Whitehead concludes that the granules in the interstitial cells of the pig, and probably also of the cat, consist of a combination, either physical or loosely chemical, of proteid with fatty material. He also shows that the pig's interstitial cells, which contain no individual globules of lipoids, are no exception to the general rule that these cells, aside from any other function that may be ascribed to them, serve as a storehouse for fatty material.

18. Principal Regions of Spinal Cord.—This paper presents some observations based on the study of transverse sections of the three principal regions (intumescentia cervicalis, intumescentia lumbalis and middle of pars thoracalis) of the spinal cord in a series of twenty-four mammals. An outline drawing of a transverse section of the cords in each region is included together with tables of measurements showing variations in dimension and structure of the cords in the different mammals studied.

19. **Development of Cerebral Cortex.**—It is the belief of Mellus that all mental development has an anatomic basis. In a comparative study of the cellular structure of the so-called "Broca's area" in the brains of three individuals there was found a very appreciable difference in the thickness of the cortical layers in favor of the left hemisphere. It was almost impossible to say just where this difference lies. The counting of cells in a cortical area is extremely difficult, although by no means impossible. In many instances the count varies so considerably in contiguous areas of the same convolution, due sometimes to the presence of blood-vessels and the doubtful nature of many of the cells, that it is difficult to arrive at satisfactory conclusions. As a rule, however, it appears that the deeper cortex has the greater number of cells. One would naturally suppose that a cortex increased in depth by increased functional activity would be due either to increase in the volume of the cells or separation of the cells by reason of an increase in the outgrowing or ingrowing processes, or both together. From careful and prolonged study of the motor area in the human cortex Mellus is convinced that there are great variations in different individuals in the development of the largest elements, the so-called Betz cells.

Annals of Ophthalmology, St. Louis

October, XXI, No. 4, pp. 669-831

20 Serum and Vaccine Therapy in Connection with Diseases of Eye. S. Mayou, London.
21 Two Interesting Cases of Foreign Body in Eye. G. G. Lewis, Syracuse, N. Y.
22 Case of Quinin Amblyopia. C. B. Welton, Peoria, Ill.
23 Relation of Teeth to Eyes. W. E. Bruner, Cleveland.
24 Epinephrin in Treatment of Acute Corneal Staphyloma. P. J. Pontius, Philadelphia.

American Journal of Orthopedic Surgery, Philadelphia

November, X, No. 2, pp. 171-307

25 *Etiology of Chronic Non-Tuberculous Arthritis, Miscalled Arthritis Deformans. L. W. Ely, Denver.
26 Scoliosis. E. H. Bradford, Boston.
27 *Treatment of Scoliosis (Fixed Type) by Plaster, Supplemented by Pneumatic Pressure. J. P. Lord, Omaha.
28 Industrial Education of Crippled and Deformed. H. W. Orr, Lincoln, Neb.
29 *Simple Operation for Relief of Deformity in Certain Cases of Volkmann's Paralysis. L. W. Ely, Denver.
30 Absence of Bony Femoral Heads and Necks. J. Ridlon and H. B. Thomas, Chicago.
31 Traumatic Spondylolisthesis Following Fracture of a Congenitally Deficient Fifth Lumbar Vertebra. A. H. Maccordick and J. A. Nutter, Montreal, Canada.
32 Treatment of Traumatic Flat-Foot. A. H. Cilley, New York.
33 Operative Treatment of Claw-Foot. J. T. Watkins, San Francisco.
34 *Use of Carl Spengler's "I. K." Serum in Treatment of Tuberculous Joint Disease, with Report of Cases. H. O. Eversole and C. L. Lowman, Los Angeles, Cal.
35 Pathology and Therapy of Congenital Dislocations of Hip. R. Werndorf, Vienna, Austria.
36 *Conservative Operative Treatment of Hammer-Toe. W. J. Merrill, Philadelphia.
37 Abdomino-Vesical Support. D. G. Evans, London.

25 and 27. Abstracted in THE JOURNAL, August 3, p. 392.

29. **Deformity in Volkmann's Paralysis.**—The contracture in Ely's case was due to some of the deeper intrinsic muscles of the hand, and apparently also to the adhesion of new granulation tissue binding the long flexor tendoons to the front of the proximal phalanges of the fingers. He found that when he passed the blade of the scalpel on the flat, close to the anterior surface of the phalanx, dividing these adhesions for a distance of about one-half inch, he could easily reduce the contracture, but that until this tissue was divided the contracture could not be reduced. The contracture of the thumb was due to a tight contracture of the flexor brevis pollicis and disappeared when this was divided.

34. **Treatment of Tuberculous Joint Disease.**—The authors report thirteen cases. In all but one of these favorable results were obtained from Spengler's I. K. treatment.

36. **Operative Treatment of Hammer Toe.**—Merrill transplants the extensor tendons into the metatarsal bone to preserve the function of that muscle and prevent atrophy of it. The muscle pull raises the metatarsal head and lessens the tendency to one feature in the mechanism of hammer toe and often relieves an associated metatarsalgia. The flexors are implanted into the base of the first phalanx.

Archives of Ophthalmology, New Rochelle, N. Y.

November, XLI, No. 6, pp. 559-677

38 Distortions of Visual Fields in Cases of Brain Tumor. H. Cushing and C. B. Walker, Boston.
39 Simplified Gram Technic. W. H. Snyder, Toledo, Ohio.
40 Additional Experiments on Excretion of Hexamethylenamin in Ocular Humors. L. B. Whitham, Baltimore.
41 Details of Vision of 132 Cases of Intracapsular Extraction of Cataract. H. Smith.

Boston Medical and Surgical Journal

November 21, CLXVII, No. 21, pp. 715-749

42 Syphilis: Treatment, Old and New. A. F. Downing, Cambridge, Mass.
43 *Difficulties in Interpreting Significance of Regional Muscle Rigidity and Degeneration About Thorax; Diagnostic Limitations. J. L. Pomeroy, Monrovia, Cal.
44 Importance of Early Recognition of Suppurative Otitis Media. P. Hammond, Boston.
45 Survey of Tuberculosis Situation in Massachusetts. J. B. Hawes, Boston.
46 Pellagra in Rhode Island. A. H. Harrington, Howard, R. I.

November 28, CLXVII, No. 22, pp. 751-790

47 Contributions of Nineteenth Century to a Living Pathology. W. J. Mayo, Rochester, Minn.
48 *Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, According to Method of Forlanini. (To be continued.) G. M. Balboni, Boston.
49 Under Ether. H. T. Bailey, North Scituate, Mass.

43. **Regional Muscle Rigidity and Degeneration About Thorax.**—From a diagnostic standpoint as to the presence of intrathoracic disease, most probably pulmonary, Pomeroy says that muscle spasm and degeneration is as definite a sign of those processes as similar phenomena in the abdomen. In the hands of the expert clinician, one accustomed to the various phases of this problem, muscle changes over the thorax deserve careful study, and give reliable information that inflammatory changes or pathologic processes are to be found in the thorax, provided there is nothing in the peculiarities of the individual which would otherwise satisfactorily account for the signs. It must be understood that regional muscle spasm, degeneration and reflex hyperalgesia may result from causes other than pulmonary tuberculosis, but with the limitations outlined in the paper. The careful study of these phenomena is recommended to every thoughtful clinician.

48. **Artificial Pneumothorax in Lung Tuberculosis.**—This is Balboni's first paper of the series. He discusses first the historical development of the treatment of tuberculosis by the establishment of an artificial pneumothorax by means of the injection of nitrogen gas, first proposed and practiced by Forlanini in 1882. What was done later in other countries is then discussed; finally the technic and preparation of the patient, the theories as to the action of the pneumothorax and the pathologic changes. He has treated twenty-one patients. All except two are working and have kept at work continuously during the treatment.

Journal of Abnormal Psychology, Boston

October, VII, No. 4, pp. 233-312

50 Meaning of Ideas as Determined by Unconscious Settings. M. Prince, Boston.
51 Clinical Study of Case of Phobia. J. J. Putnam and M. Prince, Boston.

Journal of Arkansas Medical Society, Little Rock

November, IX, No. 6, pp. 137-156

52 Gall-Stones. J. A. Foltz, Fort Smith.
53 Thoracic Aneurysm; Report of Two Cases. J. H. Chestnutt, Hot Springs.
54 Diagnosis of Some Urinary Affections. J. K. Smith, Texarkana, Tex.

Journal of Medical Research, Boston

November, XXVII, No. 2, pp. 115-227

55 *Pertussis: Histologic Lesion in Respiratory Tract. F. B. Mallory and A. A. Hornor, Boston.
56 *Origin of Giant Cell in Tuberculous Lesions. A. M. Burgess, Boston.
57 *Chloroma. A. M. Burgess, Boston.
58 *Pleomorphic Bacillus Growing in Association with a Streptothrix. H. U. Williams, Buffalo.
59 *Complement Fixation in Tuberculosis. A. T. Laird, Duluth, Minn.
60 *Research on Experimental Typhoid-Carrier State in Rabbit. J. A. Johnson, Philadelphia.
61 Blood-Cell Picture in Horse-Serum Anaphylaxis in Guinea-Pig: Kurloff's Inclusion Cells. M. M. Canavan, Boston.
62 Studies in Infarction: II. Experimental Bland Infarction of Lung. H. T. Karsner and J. E. Ash, Boston.
63 *Diluting Fluid for Standardization of Vaccines with Hemocytometer. J. G. Callison, New York.

55. **Pertussis.**—Whooping-cough, the authors believe, is due to a minute bacillus which occurs in large numbers between the cilia of the epithelial cells lining the trachea and bronchi and possibly also the nose. The location of the organism is apparently characteristic for the disease. Its action seems to be largely mechanical. It interferes by its presence with the normal movements of the cilia and possibly leads to their destruction. The mechanical interference with the action of the cilia, and possibly their destruction, prevent the normal removal of secretion. The bacilli and the secretion produce a continuous irritation which results in coughing and usually also in the characteristic spasm known as whooping. The bacillus found in the lesions by Mallory and Hornor, they believe, is probably identical with the organism discovered and described by Bordet and Gengou, but this identity remains to be demonstrated by the experimental production of the characteristic lesion in monkeys and puppies.

56. **Origin of Giant Cell in Tuberculous Lesions.**—Burgess reports the results of an experimental study of the origin of the giant cells which form around the fat-like substance produced by tubercle bacilli. The fatty material was injected subcutaneously into guinea-uigs and the resulting lesions were studied microscopically at various time intervals. In addition, for the sake of comparison, various other substances such as calcium salts, fat, fatty acids and cholesterin were injected in a similar manner and the lesions produced examined in parallel series of sections. The results obtained are similar in character but differ in detail. They all indicate strongly that these foreign body giant cells originate in only one way—by fusion of endothelial leukocytes.

57. **Chloroma.**—It is held by Burgess that the tumors to which the term chloroma has been applied do not constitute a pathologic entity. On the contrary, they represent a part of the pathologic process in one type of acute myelogenous leukemia. Chloroma has not been shown to have any relation to true lymphatic leukemia. Myelogenous leukemia is a blood metastasis of a true tumor whose origin is in the bone marrow and whose cells invade the blood-stream and bone-marrow. In certain cases in which the cells are, most of them, relatively undifferentiated and multiply rapidly, other tissues are invaded. Sometimes in this way definite nodules or masses of tumor cells are formed. These masses, if green, are called chloroma.

58. **Pleomorphic Bacillus with a Streptothrix.**—The organisms that form the subject of Williams' paper were obtained from a case of tuberculous pericarditis. A bacillus and a streptothrix were encountered growing together in a mixture. Under certain conditions they resembled each other closely, and nearly led to the belief that one might be transformed into the other. Eventually they were separated by plating, and in pure cultures each retains its characteristic properties. The bacillus develops into long filaments, with occasional branches, in media containing 1 per cent. of dextrose. The streptothrix produces single oval spores at the ends of the threads or branches, resembling spore-formation in some species of bacilli, including the bacillus with which it was associated as above mentioned.

59. **Complement Fixation in Tuberculosis.**—The complement fixation test with antigen derived from tubercle bacilli is believed by Laird to be at present of comparatively little diagnostic value. It is quite probable that it may be of more aid in diagnosis if better antigen is devised and certain disturbing factors are eliminated. Even in the present stage of the development of the test sharply positive reactions are obtained at times and the quantitative study of the various phenomena connected with the presence or absence of such reactions, especially when correlated with clinical findings, promises results of some value in studying the course of the disease. The more general use of the Wassermann test for syphilis in institutions for tuberculous patients, he believes, is desirable not only for the aid it gives in clearing up a doubtful diagnosis, but also for the purpose of studying the relations between the two diseases.

Eighty-five tests with the sera of thirty-four patients, the antigens used being derived from tubercle bacilli, gave complement fixation in twenty-four tests. These positive results were obtained with the blood of four patients. The blood serum of a patient in the moderately advanced stage of the disease, was tested on four different dates and each time gave a completely positive result. On May 3, 1911, different dilutions of his serum were tested and complete fixation was obtained with .01 c.c. of the serum. Again on June 28, 1911, complete fixation was obtained with .05 c.c. of his serum, no higher dilutions being used at this time. The patient was doing well during the period covered by the tests. He began taking tuberculin on Sept. 5, 1911, which was four weeks subsequent to the first test, and on June 28, 1911, the date of the last test, he had reached a dose of .00068 grm. B.F.Co. (a mixture of B.F. and E.E. given at the Adirondack Cottage Sanitarium). He was discharged with disease "arrested." The serum of a patient in the moderately advanced stage of the disease, without tubercle bacilli in his sputum, was tested on four occasions. He had been taking tuberculin treatment since Nov. 22, 1910 (S.B.E.). The first two tests were negative. On March 7, 1911, the patient had a severe general tuberculin reaction in the course of treatment and on April 20, 1911, his blood gave a completely positive reaction. On June 28, 1911, this could no longer be obtained. He was admitted as a moderately advanced case and was discharged after nine months an "apparent cure." The highest dose of tuberculin reached by him was S.B.E. .0032 c.c.

The two other positive reactions were obtained on July 7, 1911, from the blood serum of patients who were in the moderately advanced stage of the disease and had tubercle bacilli in their sputum. Both were taking tuberculin, but had received only small doses, less than .0000001 gram of O.T. and B.F. respectively. One was discharged "improved" and the other with "disease arrested." Beside these tests in which complete fixation was obtained there were a number in which there was partial fixation. Complete hemolysis was obtained in sixteen of the tests, although the antigen used alone in the same dose (without the patient's serum) had shown some anticomplementary action. This is the so-called "inhibitive" reaction of Caulfield, which he believes is characteristic of certain favorable cases or of cases doing well at the time of the test. Seven of these sixteen "inhibitive" reactions were obtained with the serum of a healthy control, the remainder were from four patients with moderately advanced disease who were doing well at the time of the test.

60. **Experimental Typhoid-Carrier State in Rabbit.**—The following summary is made by Johnston. The condition analogous to the typhoid-carrier state in man can be produced in the rabbit. *B. typhosus* can be recovered from the blood up to the end of the first month and longer following inoculation, and from the feces up to 110 days. *B. typhosus* can be recovered from the bile approximately from thirty to sixty days after inoculation, and would then seem to become attached to the gall-bladder wall, since post-mortem examination revealed the presence of *B. typhosus* in the gall-bladders of nine of eleven unvaccinated animals examined; and no typhoid organisms could be found in the gall-bladders of five vaccinated animals so examined. An inoculated animal becoming a carrier may have a reappearance of the typhoid organisms in the stools due to a catarrhal condition affecting the gall-bladder. From the results obtained in this experiment, vaccination would certainly seem to be indicated as a means of treatment in the human carrier, and also as a prophylactic agent in the prevention of such carriers. A routine examination of the stools and urine of all typhoid convalescents should be required by municipal health authorities until successive cultures are negative, as is at present the practice with cases of diphtheria.

63. **Fluid for Standardization of Vaccines.**—Counting the bacteria in the hemocytometer is the method proposed by Callison. For more than two years he has used the following diluting fluid, which has proved to be so satisfactory:

Hydrochloric acid	2 c.c.
Bichlorid of mercury, 1 to 500	100 c.c.
Acid fuchsin, 1 per cent. aqueous solution, q. s. to color.	

His instructions for carrying out his method are as follows: A drop of the filtered solution is placed on the ruled stage of the hemocytometer, covered with a coverslip, and examined with a 4 mm. objective. The color should be just deep enough not to obscure the ruling. If the color is too deep, filter again, as each filtration removes some of the fuchsin. If not deep enough, add more fuchsin solution. Using the red dilution pipet, draw up the bacterial emulsion to the .5 or 1 mark, and the diluting fluid to the 101 mark. Shake vigorously for three minutes, allow two or three drops of fluid to run out of the pipet, then deposit a small drop on the stage of the hemocytometer. Cover with a polished glass coverslip and set aside half an hour for sedimentation to occur. Make the count with a small diaphragm and a strong light. Keep the small square being counted well in the center of the microscopic field. Before counting, focus up from the ruled lines to ascertain if all the bacteria have settled on the ruled stage. Make the count and the subsequent calculation as for red blood cells. The bichlorid forms a mercury albuminate on the surface of the bacteria and causes more rapid sedimentation; the hydrochloric acid keeps the whole in solution, and the acid fuchsin stains the bacteria, making them more visible.

Journal of Michigan State Medical Society, Battle Creek

November, XI, No. 2, pp. 683-756

64 Benign and Malignant Ovarian, Parovarian and Uterine Tumors in Pregnancy, Labor and Puerperium. A. B. Keyes, Chicago.
65 Aphasia. C. W. Hitchcock, Detroit.
66 Hand Knowledge; Its Results and Possibilities for Acquirement. H. L. Simpson, Detroit.
67 Relation of Convulsions in Children to Dietary Errors. J. B. Jackson, Kalamazoo.
68 Cirrhosis of Liver. I. M. J. Hotvedt, Muskegon.
69 Functional Test in Surgical Diseases of Kidney. E. K. Cullen, Detroit.

Journal of South Carolina Medical Association, Seneca

November, VIII, No. 11, pp. 285-316

70 *Present Status of Goiter Surgery. A. B. Knowlton, Columbia.
71 Effects of Sugars and High Percentage of Proteids on Fermental Disorders in Children. W. Weston, Columbia, S. C.
72 Typhoid Perforation; Operation; Recovery. E. H. Sparkman, Charleston.
73 *New Method of Operation for Typhoid Perforation. L. B. Owens, Columbia.

70 and 73. Abstracted in THE JOURNAL, June 15, p. 1891.

Journal of Tennessee State Medical Association, Nashville

November, V, No. 7, pp. 263-307

74 Ocular Manifestations of General Diseases. H. Wood, Nashville.
75 *Present Status of Brain Surgery. L. L. Sheddan, Knoxville.
76 Medical Inertia. O. Dulaney, Dyersburg.
77 Salvarsan. G. R. Livermore, Memphis.
78 Clinial Diagnosis and Treatment of Laryngeal Diphtheria. O. W. Hill, Knoxville.
79 Treatment of Laryngeal Diphtheria. W. S. Farmer, Cookeville.
80 Recent Advances in Thoracic Surgery. W. A. Bryan, Nashville.
81 *Remarkable Case of Katatonia. J. W. Stevens, Nashville.

75. Abstracted in THE JOURNAL, April 27, p. 1309.

81. This case was reported in the *Journal of the Tenn. State Medical Assn.*, July, 1911, and was abstracted in THE JOURNAL, Aug. 12, 1911, p. 584.

Medical Record, New York

November 23, LXXXII, No. 21, pp. 925-970

82 *Calorimetric Observations. G. Lusk, New York.
83 État Vermoulu (Worm State): a Form of Senile Degeneration of Brain. E. M. Williams, Philadelphia.
84 Case of Chronic Pancreatitis with Polycythemia (Clinical Diagnosis: Pancreatic Lithiasis). G. A. Friedman, New York.
85 Large Abscess of Temporosphenoidal Lobe Complicating Chronic Purulent Otitis-Media. R. Lewis, New York.
86 Literary Genius and Manic-Depressive Insanity. A. C. Jacobson, Brooklyn.
87 Bacterin Treatment in Pulmonary Tuberculosis. G. Sanders, New York.
88 Milk-Supply. C. Cristadoro, Point Loma, Cal.

November 30, LXXXII, No. 22, pp. 971-1016

89 Psychology of Gambling Habit. J. L. Corning, New York.
90 Pro and Con of Maintenance of Retro-Auricular Opening After Radical Mastoid Operation. S. Oppenheimer, New York.
91 Effect of Present Prevention on Spread of Consumption. T. J. Mays, Philadelphia.
92 Claudius Galen. (131 A. D. to 200 A. D.) T. W. Harvey, Orange, N. J.
93 Importance of Local Laboratory in Medical Practice: County Laboratory. W. S. Magill, Albany, N. Y.
94 *Disinfection of Intestine by Insufflation of Oxygen. M. Gross, New York.

82. **Calorimetric Observations.**—The results of Lusk's experiments with a dog lead him to the general conclusion that there exist the following forms of metabolism in the quiet or sleeping dog excluded from thermal influences: 1. A basal metabolism when the cells are nourished by a blood-stream which does not receive food from the intestinal tract and the composition of which is regulated by the organs of the body. 2. A metabolism due to plethora induced by an increased quantity in the blood of carbohydrate or fat metabolites which are being absorbed from the intestine. 3. A metabolism due to the stimulus of incoming amino-acids acting on the cells.

The metabolism of plethora and the metabolism of amino-acid stimulation cannot be added to each other; there is no summation of effect when both influences are brought into action together. In other words, cellular activity induced by the presence of carbohydrate is not further intensified by the stimulus of amino-acids unless the latter alone would accomplish the result. The height found for the basal metabolism of the perfectly quiet resting organism, excluded from thermal influences and determined eighteen hours after the ingestion of food, confirms Rubner's law of skin area, but places the heat elimination at a lower level.

As a practical conclusion of these experiments it appears that in a quiet and resting animal the heat production is increased by about 20 per cent. after the ingestion of a mixed diet, and this increase continues during the period of intestinal absorption; also addition of moderate amounts of protein to the diet has little effect on the production of heat, even though this protein given alone would of itself cause a considerable rise in the heat production. Hence, a mixed dietary is physiologically economical.

94. **Disinfection of Intestine by Insufflation of Oxygen.**—Ad. Schmidt introduced oxygen directly into the small intestine by means of the "duodenal tube," and the results he reported were very favorable. Gross has adopted the following procedure for the oxygen insufflation: His duodenal tube is introduced in the morning on an empty stomach down to mark 90 cm., which means about 30 cm. beyond the pylorus. This so-called "deep exploration" is particularly desirable for the present purpose, as it prevents the return-escape into the stomach of too large quantities of oxygen. The outer end of the duodenal tube is now connected direct with the regulator of an ordinary oxygen jar, and the gas is allowed to flow slowly in. From time to time, when the patient complains of distention, the influx is interrupted. In this way he has been able to administer any desired quantity of oxygen. He endeavors to apply a kind of "continuous gas bath" which may last from 1½ to 2 hours. Instead of making two insufflations a day, as advised by Ad. Schmidt, Gross allowed in one case the tube to remain in situ from morning till evening and administered the second insufflation in the evening. In the meantime the patient received liquid food per os, not through the tube. Expulsion of odorless flatus could often be observed during the administration, showing that the gas had passed the ileocecal valve.

New York Medical Journal

November 23, XCVI, No. 21, pp. 1049-1100

95 Acute Poisoning; Its Diagnosis and Treatment in Actual Practice. E. C. Hill, Denver.
96 Relation of Pregnancy to Certain Conditions of Digestive Organs. A. L. Benedict, Buffalo.
97 Teaching of Pulmonary Diseases. J. B. Huber, New York.
98 Insurability of Women; Special Reference to Effects of Major Operations. T. H. Bradford, Philadelphia.
99 Air Impurities. C. Baskerville, New York.
100 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
101 Use of Mixed Infection Vaccines in Treatment of Myalgia and Arthritis. R. E. Brenneman, Pittsburgh.
102 Therapy of Syphilis. J. L. Mortimer, New York.
103 Value of Meteorism or Tympany in Peritonitis. B. Van Swearingen, Fort Wayne, Ind.

November 30, XCVI, No. 22, pp. 1101-1152

104 Gastric and Duodenal Ulcers; Etiology and Treatment. W. E. Deeks, Ancon, C. Z.
105 Inheritance of Acquired Characters: Bacterial Phenomena as Problems of Heredity. J. Wright, New York.
106 Urethral Drainage in Treatment of Chronic Urethritis. G. H. Persson, Mount Clemens, Mich.

107 Borderline Case; a Vital Problem. M. Sutton, New York.
108 Induction of Anesthesia. L. D. Frescoln, Philadelphia.
109 Air Impurities. C. Baskerville, New York.
110 *Diet in Carcinoma. E. G. Kessler, New York.
111 Postyen and Its Natural Hot Sulphur Mud-Baths. E. Pisko, New York.

110. **Diet in Carcinoma.**—The proteins of the meat diet are all rich in sulphur and in Kessler's opinion ought to be reduced. However, he would not go so far as to recommend an exclusively vegetarian diet in carcinoma. A vegetarian diet would certainly not, according to his opinion, be sufficient for good nourishment with the high rate of waste in carcinoma. Proteins with a low percentage of sulphur are the caseins of cow's milk. It would also be desirable to reduce the lactalbumin of cow's milk and to use the pure casein. Conversely, one must exclude a number of vegetable foods that contain a high proportion of sulphur. To prevent cancer or metastases on the lips or in the mouth, smoking ought to be stopped. In smokers the production of sulphocyanic acid is increased. Sulphocyanic acid is a compound of neutral sulphur. It diminishes the oxidation of sulphur. Most likely, Kessler says, this is to be attributed to the influence of the nicotin. The diet which he would recommend in carcinoma would be somewhat of the following scheme, to be modified according to the taste of the individual:

Breakfast: Tea or coffee with sugar and cream (not milk, on account of the lactalbumins), little bread with much butter, fresh or cooked fruit.

Dinner: Soup, of fruit or cereals or vegetables (not meat broths), peas, lentils, beans; for change, meat, 2 ounces at the most, purée of potato, dumplings, edible roots (carrots, beets), boiled or preserved fruits, rice, salads.

Supper: Fruits with rice, potatoes with butter, salads.

The nourishment should be plentiful. The necessary quantity of casein, 1 or 2 ounces, can be mixed with butter and used with the various meals. The casein can also be added to the various soups, purées of potatoes, and to the dishes of vegetables during the process of cooking. In order not to cause any aversion of the patient to the casein, it must be absolutely pure and tasteless. A flavoring addition to the casein of stewed tomatoes and the like is also permitted. The casein may also be given in the form of a medicament, in dry powder, in one half to 2 dram doses, every three hours, between meal times, and is best taken down with a swallow of water.

New York State Journal of Medicine, New York

November, XII, No. 11, pp. 621-686

112 Results Obtained with Antityphoid Vaccine in U. S. Army to End of 1911. F. F. Russell, U. S. Army.
113 Tropical Climate and Its Physiologic Effects. J. M. Phalen, U. S. Army.
114 Prophylaxis of Some Tropical Infections. F. M. Shook, U. S. Navy.
115 Practical Results of Surgery in Epilepsy. G. K. Collier, Sonyea.
116 *End-Results of Head Surgery in Epilepsy. J. F. Munson, Sonyea.
117 *Indications for Surgical Intervention in Epilepsy. E. A. Shap, Buffalo.
118 Six Cases of Hereditary Chorea. E. P. Ballentine, Rochester.
119 Death While Using Nitrous-Oxid and Oxygen as Anesthetic. P. J. Flagg, Yonkers.
120 Experiences with Hormonal in Treatment of Acute and Chronic Intestinal Paresis. J. T. Pilcher, Brooklyn.
121 Pathogenesis, Anatomy and Cure of Prolapse of Rectum. A. V. Moschcowitz, New York.
122 Surgical Constipation. S. G. Gant, New York.
123 Gall-Stones. P. Syms, New York.
124 *Cancer of Prostate. E. Fuller, New York.
125 Public Hospitals of New York State. R. W. Hebberd, Albany.

116. **Head Surgery in Epilepsy.**—There can be no question, says Munson, that in the past there has been much ill-advised and indiscriminative operative intervention in the epilepsies, and some of the cases, viewed either from the purely surgical point of view or from the standpoint of the epileptologist, are sad commentaries on the ill-judged activity of the surgeon. He reports nineteen cases in which some surgical intervention was undertaken on the head, and which afterward came to autopsy. In some cases, the scar tissue formation has been the evident cause of continued irritation and in others there was cerebral destruction, which was sufficient to cause the attack, but in others there was apparently both a successful operation and an absence of lesion. Why, then, asks Munson, the ill success? He has frequently expressed his idea of the origin of epilepsy as an equation in which the sum of a varying number of known, unknown and variable quantities is placed equal to the seizure, i. e., causes the seizure. It would appear from this that the etiology of any case was a summation, and therefore unless one of the etiologic quantities was decidedly greater than the others, the treatment of any one of them would not cure the case. Munson believes that this is true. In looking over the cases which have been made the subjects of operation, there is found, for example, a decided neuropathic taint in many of the family histories, and if this is to be accepted as an important etiologic quantity, one must admit that it cannot be excised, along with some focal lesion, or drained away by a drainage and decompression operation. Similarly, some patients who desire operation have alcoholism or venereal excesses as part of their etiologic equation. There again the knife is handicapped. In some of the traumatic cases the trauma is not the cause, but is the result, of the first seizure, and therefore the operation is of secondary importance.

117. **Surgical Intervention in Epilepsy.**—Out of the total number of 3,502 patients admitted to the Craig Colony for Epileptics, forty-eight had been trephined either before admission or during their treatment at the Colony. In a few of these the operation had been repeated. Naturally, none of the patients operated on at the Craig Colony have been trephined immediately after a trauma or the onset of the epilepsy, as they were all confirmed epileptics at the time of admission. The results of operation on these patients cannot be compared with those obtained by operation immediately after the trauma or in the early stages of the epilepsy. None of the patients trephined at the Colony have been permanently relieved from the attacks although most of them were benefited, at least temporarily, by the operation. In several cases in which operation was done before admission, the condition of the patient had been made worse by the operation, as was stated in the histories at the time of admission. In some of these cases the relationship to trauma or focal irritation was very remote or questionable; the slight trauma to which they were attributed acting merely as an exciting cause in a susceptible individual. Some of the trephined cases were done for conditions other than traumatism. Convulsions following encephalitis or meningitis may be considered as epilepsy due to gross brain lesions. Operation is indicated in those cases in which a Jacksonian type of seizure suggests a focal lesion. Unfortunately for the operative results such a lesion may not be limited to the Rolandic region nor even situated in this area, but in one of the surrounding lobes or deeper structures and produces the convulsions by irritation of the motor area. As a general rule, the more a convulsion is limited to one extremity or part of an extremity, the more localized is liable to be the cortical irritation and the greater the chances for arrest of the seizures by removing this focus. When a definite injury to the head has been sustained, if of such a nature that fracture or hemorrhage is suspected, Sharp says it is better to operate at once and remove clots, depressed bone, etc., before the irritation leads to epilepsy; for unfortunately, the convulsions once started may persist as confirmed epilepsy even after removal of the exciting cause. When epilepsy has already developed as a result of trauma to the head a single operation may produce arrest of the attacks. In some cases in which the attacks have ceased for a year or two following the operation and then return, it has been the custom with some surgeons to trephine again. Sharp's observation is that if the first operation, with a fair amount of decompression, does not produce relief it is useless to repeat the surgical measures.

124. Abstracted in THE JOURNAL, May 11, p. 1475.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

November, XV, No. 5, pp. 231-278

126 Mastoiditis, with Observations on 150 Patients. R. H. Wright and S. C. Bowen, Richmond, Va.
127 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.
128 Racial Betterment from Sociologic, Neurologic and Psychiatric Viewpoint. B. R. Tucker, Richmond, Va.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

October 18, VI, No. 3, pp. 327-413

1 *Experiments with Crude Phenol as Larvicide in British Guiana. K. S. Wise and E. P. Minnett.
2 Morphology of Trypanosoma Gambiense and Trypanosoma Rhodesiense in Cultures; Comparison with Developmental Forms Described in Glossina Palpalis. J. G. Thompson and J. A. Sinton.
3 Spirochaeta Ctenocephali, sp. nov., Parasitic in Alimentary Tract of Indian Dog Flea, Ctenocephalus Felis. W. S. Patton.
4 Outbreak of Canine Piroplasmosis Due to Piroplasma Gibsoni Among Hounds of Madras Hunt, Together with Successful Treatment of Disease with Salvarsan. T. H. Symons and W. S. Patton.
5 Attempts at Cultivation of Malarial Parasite by Bass' Method. J. A. Sinton.
6 *Urriola's Test for Malarial Infection. J. A. Sinton.
7 Early References to Tropical Diseases. C. Singer.
8 Occurrence and Distribution of Herpetomonas Pediculi. H. B. Fantham.
9 Influence of Meteorologic Conditions on Development of Trypanosoma Rhodesiense in Glossina Morsitans. A. Kinghorn and W. Yorke.

1. Crude Phenol as Larvicide in British Guiana.—The authors are inclined to the belief that, in the case of a temporary small collection of water, if crude phenol is applied it does not evaporate to any large extent but concentrates as the puddle dries up, and further, that, having dried up, the ground is sufficiently impregnated with the phenol to render water deposited later by a shower of rain fatal to larvae. Sufficient data have, however, not yet been collected to make an authoritative statement on this point. Laboratory experiments showed that a dilution of 1 in 20,000 is efficient as regards all larvae inside two hours, but in the case of pupae a much longer time is required, probably owing to the fact that the pupa possesses a thick chitinous shell and has no alimentary canal into which to take the poison. For use they calculate one teaspoonful to every 2 cubic feet of water or 1 ounce to 16 cubic feet; this gives a dilution of about 1 in 16,000, and allows a fair margin of safety to cover errors in calculation. The crude phenol containing all its impurities is much more efficient than the purified, more highly soluble product.

6. Urriola's Test for Malarial Infection.—Sinton does not believe in the value of Urriola's test (discovery of malarial pigment in the urine). He says that it is almost impossible to exclude the possibility of the pigment derived from extraneous sources finding its way into the urine, and therefore the presence of small quantities of fairly large masses of pigment appears to him to be of no diagnostic value. The trouble necessary to exclude the possibilitiy of extraneous pigment appears to be too great in comparison with the value of the test. As far as can be concluded from the few patients examined by Sinton, the presence of pigmented leukocytes or casts appears to be of more value than free pigment in making a diagnosis of present or past malaria, especially in chronic cases. The presence of pigmented leukocytes or casts does not seem to be an indication of active malaria, but rather of the fact that the patient has at some time or other had malaria. Two of his patients were examined just before being discharged as cured. One of them had had no signs of malaria for two years, yet both patients showed pigmented leukocytes. The presence of such pigment in the urine probably represents an attempt by the body, both during an infection and after the infection has passed off, to get rid of the pigment deposited in the tissues.

British Medical Journal, London

November 16, II, No. 2707, pp. 1349-1428

10 Duties of State in Regard to Tuberculosis. A. Ransome.
11 Tuberculosis in General Practice. J. A. Gibb.
12 Importance of Toxin Saturation of Tissues. E. E. Prest.
13 *After-Results of Major Operations for Tuberculous Disease of Joints. H. J. Stiles.
14 Dyspepsias of Childhood After Period of Infancy. R. Hutchison.
15 Fibrous and Fibrocystic Osteitis. R. C. Elmslie.
16 Spasmodic Contraction of Peronei in Flat-Foot. G. C. E. Simpson and N. Dunn.
17 Spasmodic Club-Foot. T. R. W. Armour.
18 Physiologic Scoliosis. M. Jansen.
19 Imperforate Anus with Perineoscrotal Orifice. G. H. Edington.
20 Recent Case of Lorenz's Operation, Demonstrating by Roentgen Rays the Development of Acetabulum. W. S. Haughton.
21 *Tuberculous Infection and Tuberculous Disease in Infancy and Childhood. C. P. Lapage.
22 System of Printed Anamnesis Questions for Children Out-Patients. F. C. Eve.
23 Psychoses of Climacteric. R. P. Smith, C. J. Macalister and T. B. Grimsdale.

13. After-Results of Operations for Tuberculous Joints.—During the ten years from 1901-11 Stiles has done sixty-three excisions of the knee for tuberculosis and of these thirty-eight have been traced. In twenty-three of the patients there was osseous as well as synovial disease, the former being sometimes in one bone, but in the majority of cases in both. Healing by first intention resulted in fifty-three cases, while in nine cases the wound broke down or recurrence set in within a month after operation. Twelve out of the sixty-three patients required a subsequent amputation, and of these nine were under 5 years of age. Of thirty patients who have been traced and recently examined, there was absolute ankylosis in twenty-nine and slight movement in one case. In twenty-seven instances there was a little flexion, the leg was absolutely straight in one case, and in a position of genu recurvatum in two cases.

He has done fifty-nine excisions of the hip and of these forty cases have been traced. In fifty-three there was osseous as well as synovial disease, the former being sometimes in one bone, but in the majority of cases in both. Usually, however, the disease was too far advanced to say whether the disease in the bone was primary or secondary. With regard to the mode of excision, the anterior route was employed in only eight cases, nearly all of which were among the early series; four were done by an external incision and the remainder by Kocher's postero-external angular incision, this method being employed even in cases in which there was an anterior abscess. Forty-eight patients were discharged with the wound completely healed and the limb maintained in the abducted position by means either of plaster-of-Paris or an abduction splint. In three cases disarticulation of the hip was subsequently performed on account of recurrence of the disease, followed by sinuses and hectic fever; one of these patients died four days after operation. Five patients returned with slight recurrence of disease necessitating further operation. Forty-three patients were found to be well, and with the limb in good position when they returned from two to six months later to have the plaster removed. Out of forty cases traced there were twelve deaths; two died in hospital of tuberculous meningitis, nine died within six months of general tuberculosis and the twelfth eighteen months later from the same cause. The results were good in nineteen cases, that is to say, the general health was excellent, the hip ankylosed, no sinuses, the scars completely decolorized and any shortening, adduction or flexion only very moderate.

There have been fifty-four excisions of the elbow. The right elbow was affected in thirty-two instances, the left in twenty-two, the difference being due, probably, to the greater use of the right arm. In 67 per cent. of the cases the disease began before the age of five years, while in 32 per cent. it showed itself within the first two years. As a result of this early age incidence a relatively large proportion (55 per cent.) of the excisions were done in children under 4 years of age. In fourteen cases the disease was primarily synovial; in the remaining forty, one or other, or all three, bones were also involved. The humerus was involved in twenty cases, the ulna in thirteen, the radius in three, while in eight cases more than one bone was involved. Of the fifty-four excisions of the elbow thirty-four have been traced. Of these, six patients died subsequently of general tuberculosis from three months to two and a half years. Some degree of local recurrence occurred in eight cases, one of which fails to be classed among the deaths. Only one required subsequent amputation. Of the remaining six the recurrence took the form either of an abscess or sinus, with slight disease in the subjacent bone. In all of these healing was brought about by a comparatively trivial secondary operation.

Of twenty-nine cases of tuberculous disease of the ankle-joint operated on during the decennium mentioned, the disease was primarily synovial in six cases, while in twenty-three cases it was both synovial and osseous. The astragalus was involved in fifteen cases, the os calcis in five, the tibia and fibula in two and the scaphoid in one. In those cases in which it was manifest that the disease was osseous in origin, the primary focus was almost invariably situated in the head or neck of the astragalus. In thirteen of the patients the disease began in children between 2 and 4 years of age, while in twenty-one out of the twenty-nine cases the operations were performed on children between 1 and 4 years of age. Twenty-five patients have been accounted for. Two died within three months of operation. One, who had also hip-joint disease, died a year later from general tuberculosis. In six cases amputation was subsequently performed for recurrence of the disease.

21. **Tuberculous Infection and Tuberculous Disease in Infancy and Childhood.**—Tuberculous infection, according to Lapage, almost inevitably is in large towns and it must often occur in childhood without giving rise to illness sufficiently pronounced to attract attention; or the indefinite illness, if noticed, is put down to some other cause, such as rheumatism or underfeeding. Occurring at an early age, tuberculous infection often leads to fatal results, but later in childhood it may lead only to a temporary debility and then become quiescent. Such quiescent disease, which can only be diagnosed from the history, the Roentgen-ray examination, and the tuberculin test, is not infectious, and since it is so wide-spread it is not necessary to notify every case that gives a reaction to tuberculin. To do so would be to overwhelm those engaged in preventive measures and to stultify their efforts. Tuberculous disease in children is very different from that in adults. All through childhood it tends to become generalized and a large proportion of the deaths are due to tuberculous meningitis. The glands are often affected and the disease may make considerable progress in them before it spreads to other parts or gives localizing symptoms. Therefore we must not look for definite physical signs before making a diagnosis of tuberculous disease. Lapage relies on the history, the general symptoms and the special methods of diagnosis to begin treatment early.

Edinburgh Medical Journal

November, IX, No. 5, pp. 385-480

24 Place of Pathology in Medical Curriculum. J. L. Smith.
25 Habit: Exemplified in Functional Activity of Eye Muscles. G. A. Berry.
26 Eclampsia in Edinburgh Maternity Hospital, with Special Reference to Its Seasonal Incidence. J. H. Croom.
27 Situation of Lesions in Osseous Tubercle. J. Fraser.
28 Transplantation of Ovary in Human Being: Record of Three Cases. H. S. Davidson.

Journal of Laryngology, Rhinology and Otology, London

November, XXVII, No. 11, pp. 577-632

29 International Collective Investigation of Ozena. A. B. Kelly.
30 Resection of Partial Nasal Septum for Double Sphenoidal Sinus Suppurative. P. Watson-Williams.
31 Mineral-Water and Climatic Cures in Oto-Rhino-Laryngology. G. de Parrel.
32 Malignant Diseases of Upper Air-Passages, Two Cases of Epithelioma. J. Price-Brown.

Lancet, London

November 16, II, No. 4655, pp. 1343-1414

33 Modern Combat Against Tuberculosis Among Children. Nietner.
34 Motor and Speech Paralysis Due to Cerebral Angiospasm. W. Russell.
35 Respiratory Neuroses. S. West.
36 *Treatment of Sarcoma of Long Bones. F. Eve.
37 Results of Complete Removal by Operation of Transplanted Mouse Cancer. C. E. Walker and H. E. Whittingham.
38 Duty of Practitioner in Cases of Ophthalmia Neonatorum. S. Stephenson.

36. **Sarcoma of Long Bones.**—In one case of myeloma of the tibia Eve united the femur and tibia by bolting them together with a portion of the patient's own fibula, a gap of nearly 2 inches being left between them and the limb thereby lengthened. Later skiagrams appeared to show that there was a new formation of bone beneath the periosteum of the implanted fibula. It is now a year and seven months since the operation; there is no recurrence and the patient can walk with a poroplastic support, but the union is not firm and the shortening amounts to 4½ inches. Eve says that when autoplastic grafts are used the periosteum of the graft should be preserved. Eve is convinced that a certain number of sarcomata disappear under, or are profoundly influenced by, the Coley toxins, but says we have no means of determining what proportion this is to the total number treated. He believes it is only a small proportion. His present attitude is that he would not recommend Coley's fluid in any case of operable sarcoma, nor would he recommend it as a prophylactic against recurrence.

Quarterly Journal of Medicine, London

April, V, No. 19, pp. 309-408

39 *Association Between Mitral Stenosis and Renal Fibrosis. J. Cowan and G. B. Fleming.
40 *Triple Rhythm of Heart Due to Ventricular Extrasystoles. G. B. Fleming.
41 *Diagnosis of Sinus Arhythmia. J. D. Windle.
42 *Origin of Premature Contractions. T. Lewis and M. D. Silberberg.
43 *Blood-Pressure Variations Associated with Lumbar Puncture and Induction of Spinal Anesthesia. H. T. Gray and L. Parsons.
44 Edema of Orbital Tissues. J. H. Abram.
45 Syphilitic Pseudo-Tabes, Report of Case. W. B. Warrington.
46 *Sinus Arhythmia of High Grade Induced by Digitalin. E. E. Laslett.
47 *Auricular Fibrillation Associated with High Degree of A-V Block and Paroxysmal Tachycardia. C. E. Lee.
48 Congenital Occlusion of Duodenum. E. M. Cowell.

39. **Mitral Stenosis and Renal Fibrosis.**—The relationship between the two lesions, according to the authors, may conceivably arise in various ways. It may be accidental; the renal lesion may be the cause or the result of the mitral disease; or both may own the same origin. Figures quoted seem sufficient evidence that the association is not simply accidental, for Newton Pitt found that mitral disease is three times more frequently present in cases of granular kidneys than when kidneys are normal, and in the author's series the proportion is even greater [fibroid kidneys, 335 cases; mitral disease, 60 (17.9 per cent.). Kidneys not fibroid, 807 cases; mitral disease, 33 (4.0 per cent.)]. There is no doubt that the majority of cases of mitral disease are the result of an antecedent acute endocarditis of rheumatic origin. They have collected a series of 479 cases of organic mitral disease and in 275 (57.4 per cent.) the patients had suffered from some form of rheumatism or from chorea.

In a small number of cases of mitral stenosis no recognized cause of acute endocarditis can be discovered in the antecedent history, and in another group it seems unlikely, from the history of the case, that such causes, though they had been present, could be associated with the origin of the valvular lesion. It is generally agreed that the most frequent causes of these chronic cases are arteriosclerosis and chronic nephritis, and in three cases seen by the authors, the kidneys were more or less granular and the capsules adherent. It thus seems evident that in some cases the renal lesion is the cause of the cardiac one, but it is improbable that this is the common sequence. It is true that the incidence of mitral disease in cases of renal fibrosis is much greater than in cases where no renal fibrosis obtains, but the incidence is much greater in women than in men, a fact which suggests that the connection arises in other ways. The post-mortem evidence makes it fairly evident that renal fibrosis cannot be the cause of mitral stenosis in all the cases in which the two lesions co-exist, and the inference is strengthened by examination of the clinical data. The evidence seems to show that mitral stenosis and renal fibrosis may own the same cause.

40. **Triple Rhythm of Heart.**—It is suggested that the rhythmical production of stimuli at an abnormally irritable point in the ventricles may produce these rhythmic irregularities.

41. **Diagnosis of Sinus Arhythmia.**—Windle holds that irregularity of the heart in children during convalescence from febrile illness is common. In some cases it results from arhythmic contraction of the heart's chambers or disturbance in the conduction of impulses from auricle to ventricle, conditions which evidence disease of the myocardium and are of serious prognostic import; but in the majority of cases the irregularity is solely due to variations in length of the diastolic phases of the cardiac cycle, while in all respects the heart's

mechanism is normal, sinus arhythmia, a form of irregularity which is devoid of any pathologic significance whatever. The frequent occurrence of sinus arhythmia after acute illness in children is not generally known to practitioners, and the irregularity is confused with those of pathologic origin. Its recognition is important, otherwise the patient is needlessly kept in bed and subjected to unnecessary treatment until it becomes manifest that the irregularity is a negligible symptom. While, as a rule, the diagnosis of sinus irregularity is readily made on clinical examination, exceptionally it is only established from records of the heart's movements and respiration. The cases described in the paper illustrate possible fallacies in the interpretation of tracings.

42. **Origin of Premature Heart Contractions.**—The electric curves of premature contractures obtained by the authors in repeated examinations of the same patients show a remarkable constancy of outline; this fact is regarded as evidence of the constancy and limitation of the focus of irritation in which they are produced. There are facts which suggest, but do not allow them to conclude finally, that premature ventricular contractions arise, as a rule, in the special tissues which unite the auricular and ventricular musculature.

43. **Variations of Blood-Pressure.**—It is stated by the authors that in lumbar puncture the puncture of the skin is accompanied by a rise in blood-pressure which varies in extent with the degree of consciousness, the pain, and the disturbance produced by the operation, but which is not accounted for entirely by these factors. Withdrawal of cerebrospinal fluid tends *per se* to lower the blood-pressure, but the net result of lumbar puncture is to raise it for at least twenty minutes afterward. The type of blood-pressure chart obtained in lumbar puncture, when the increased intracranial pressure is of subtentorial origin, is the same as that obtained in normal individuals; or as that obtained when the increased pressure is of supratentorial origin, but in the subtentorial types the variations are less pronounced. In subtentorial cases the rise is more sustained. Blood-pressure records from cases of high spinal anesthesia show at the outset an abnormally high blood-pressure, due to mental anxiety; then a rise following lumbar puncture; next a "preliminary fall," followed by a further more marked "main fall" as the paralysis affects the thorax. Finally, as the paralysis passes off, the blood-pressure rises to its original value. Variations in the pulse-rate do not closely follow those of the blood-pressure, but a certain degree of resemblance is often seen owing to the consciousness of the patient. Vomiting during spinal anesthesia is due to thoracic paralysis. In the supine position there is no stagnation of blood in the great vessels, even when a very high spinal anesthesia is induced.

46. **Sinus Arhythmia of High Grade Induced by Digitalin.**—Three cases are described by Laslett which developed sinus arhythmia of high grade under the influence of digitalin. Two of the cases had a preexisting impairment of conductivity, notwithstanding which the grade of heart-block was not increased by digitalin so far at least as to cause ventricular silences. The first case exhibited an unusually well-developed two-peaked presystolic wave in the jugular pulse. The first wave was undoubtedly, and the second probably, auricular in origin. The peculiar form of the wave is regarded as evidence of hypertrophy of the right auricle. The third case showed an extreme sensitiveness to the drug, which, it is suggested, may have been in some way related to the fact that the auricles had just previously been in a state of fibrillation.

47. **Auricular Fibrillation.**—A case is recorded by Lea of auricular fibrillation associated with a high degree of auriculoventricular block, and with attacks of paroxysmal tachycardia of (probably) ventricular origin.

Annales de l'Institut Pasteur, Paris

October, XXVI, No. 10, pp. 737-824

49 Coagulation of Blood and Origin of Thrombin. J. Bordet and L. Delange. Commenced in No. 9.
50 Action of Manganese on the Aspergillus Niger. (Extraordinaire sensibilité de l'aspergillus niger vis-a-vis du manganèse.) (Rôle capital du manganèse dans la production des conidiés de l'aspergillus niger.) B. Bertrand.
51 Leprosy in Rats. II. E. Marchaux and F. Sorel.
52 Experimental Research on Schmorl's Bacillus. (Etudes sur le bacille de la nécrose.) E. Césari.
53 Physiologic Studies on Anaphylaxis. (Les variations de l'alexine après le choc anaphylactique dans la sérо-anaphylaxie active et passive.) P. F. A.-Delille.

Archives Générales de Chirurgie, Paris

October, VI, No. 10, pp. 1133-1260

54 *Old Spina Bifida. E. Tournier and J. Ducuing.
55 *Dermoid Cysts of the Mesentery. J. Pakowski.
56 *Fascia Lata Flap for Dura Repair. (Plastiques duremériennes avec le fascia lata.) P. Mauclaire.

54. **Old Spina Bifida.**—Tournier and Ducuing report ten cases which sustain their statements in regard to the indications for operative treatment, that is, excision of the tumor when it is complicated with nervous symptoms of no longer than a year's duration at most, or when the tumor is free from complications but is of annoying size. When the nervous symptoms are of long duration, palliative treatment should be the rule, some orthopedic operation elsewhere than on the spina bifida offering the only prospect of benefit. Under all other conditions operative treatment is contra-indicated.

55. **Dermoid Cysts of the Mesentery.**—Pakowski summarizes thirty cases from the literature, classifying them according to the location of the cyst and discussing treatment. The preferable technic is removal of the cyst, but the clinical experiences and his own experimental research show that it is necessary to resect the segment of intestine if the circulation has been impaired by the excision of the cyst.

56. **Fascia Flap for the Dura Mater.**—Mauclaire reiterates that the fascia lata is peculiarly adapted for repairing defects after herniotomy and in the dura mater, reporting a case in which it was used for the latter purpose and reviewing the literature on the subject.

Bulletins de la Société de Pédiatrie, Paris

October, XIV, No. 7, pp. 325-409

57 *Administration of Salvarsan by the Rectum in Children. (L'absorption rectale des arséno-aromatiques chez l'enfant.) A. J. Weill, Morel and G. Mouriquand.
58 *Uremia in Infants. (La forme somnolente de l'azotémie du nourrisson. Son diagnostic avec la méningite tuberculeuse.) P. Nobécourt and Mallet.
59 *Diabetic Boy of 8. (Exposé d'un cas de diabète infantile.) P. Merklen.
60 *Pyopneumothorax and Pleural Gurgling. (Pyopneumothorax et bruit du glouglou pleural.) J. Renault and P. Lévy.
61 *Enlarged Thymus Returns to Normal Size Under Roentgen Rays; Three Cases. E. Albert-Weil.

57. **Absorption of Salvarsan by the Rectum.**—Weill reports three cases in which he was able to demonstrate the absorption of salvarsan from the rectum of children between 10 and 13. The technic was the same as for intravenous injection, with addition of 5 or 10 drops of laudanum. The rectal injection was given as slowly as possible, the rectal catheter introduced deep and the injection retained for four hours at least. He did not see any evidence of local or general by-effects and he thinks this route is peculiarly advantageous for children.

58. **Uremia in Infants.**—Nobécourt states that urea was found in the cerebrospinal fluid in thirty-nine of eighty-nine sick infants in his service. Whenever the proportion of urea was over 0.5 gm. per liter the children all died in less than a month. In some cases the uremia causes a clinical picture resembling that of the somnolent form of tuberculous meningitis except that there is myosis and no lesions in the fundus of the eye; mydriasis is more common in meningitis. Another difference is that in the uremic the pulse persists regular and is not much accelerated; in meningitis the pulse is extremely irregular while the respiration is but slightly modified. In uremia the respiration is very abnormal, even a Cheyne-Stokes type being common. The gastro-intestinal disturbances with uremia frequently subside but in both uremia and meningitis there is the increasing somnolency with progressive emaciation. In the two cases described, the infants were under 3 months old, while meningitis is rarely observed so young. Decisive evidence is afforded by lumbar puncture; urea will be found present in large amounts, from 0.51 to 3.15 in his cases; in meningitis in infants he never found over 0.25 gm.

59. **Diabetes in a Child.**—Merklen gives the metabolic findings systematically recorded through nine months in a case of diabetes in a boy of 8. No treatment proved durably effectual and the child died finally in coma.

60. **Pyopneumothorax.**—Renault reports a case which confirms the importance of the single bubble sound as a sign of pyopneumothorax in a child. The sound is elicited by placing the child in a jack-knife position on his hands and feet with his legs stiff, the buttocks very high, the head close to the legs. The chest of the child is then lifted up until he stands erect, during which auscultation will reveal a single sound as an air bubble makes its way from below upward and bursts at the surface of the fluid. Repeating the maneuver brings the sound anew each time. This sign of the fluid and air accumulation may be evident before there is anything else to suggest its presence.

61. **Roentgenotherapy for Enlargement of the Thymus.**—Weil calls attention anew to the remarkable efficacy of Roentgen exposures in reducing the size of an abnormally large thymus. His four cases bring to eleven the number on record in all of which the measure proved successful. He does not apply large doses, finding the mild amply sufficient. There was no further trouble forty-eight hours after exposure to from 1 to 5 H units, with a filter, 18/10. He does not think it necessary to do more than reduce the size of the thymus; it is not necessary to destroy it altogether. His patients were infants between 2½ and 9 months old. The number of exposures ranged from five to twelve as a rule, although Meyer gave forty-seven very mild exposures in his case.

Presse Médicale, Paris

November 6, XX, No. 91, pp. 921-928

62 *Improved Technic for Operative Relief of Gastric Crises, etc.: Excision of Spinal Ganglia. (Gangliectomie rachidienne dorsale.) J. A. Sicard and E. Desmarest.
63 Hemolysis in Tuberculosis. (Anémie hémolysinique tuberculeuse.) E. Weill, G. Gardère and A. Dufourt.

62. **Excision of Spinal Ganglia.**—Sicard and Desmarest give an illustrated description of an operation which breaks the continuity of the spinal nerves as by the Förster and Franke methods, while it seems to be free from their uncertainties and the possible dangers of both. They insist that if the Franke operation is done in a way to be harmless, it fails to accomplish its purpose, while if it is thoroughly done it is dangerous. Dejerine has reported a death on the table from double pneumothorax occurring during a Franke operation, and they have had a similar fatality in their experience. An illustration of the findings on the cadaver show that the operation acts more on the anterior than on the posterior roots of the intercostal nerves, and thus fails largely of its purpose. The technic proposed is to resect the ganglion after laminectomy, not opening into the dura mater; it is thus an extradural spinal ganglicctomy. It is applicable only to the intercostal nerves, and laminectomy in the dorsal region they regard as comparatively simple. The nerve in its dura mater sheath is ligated with O silk close to the spinal cord, and the nerve farther along is seized with forceps. The nerve in its intact sheath is then cut with scissors close to the ligature, and the other end is torn loose by twisting it up gently on forceps. The nerve tears beyond the ganglion which is thus brought away whole, entirely outside of the dura. As the ligature is drawn tight the patient may stop breathing and the pulse grow faster, but these reflex phenomena last only a few seconds. The various steps of the operation are illustrated and a case described in which it was successfully applied. The patient was a man of 44 with tabetic gastric crises lasting two or three weeks at a time and recurring about every two months. He had been clamoring for operative relief of some kind for two years, and the above technic was applied last July. After laminectomy from the fifth dorsal to the ninth dorsal vertebrae, the epidural space was freed from fatty tissue and the ligature was thrown around the seventh left intercostal nerve between the cord and the ganglion. The ganglion was then excised by cutting the nerve above and tearing the nerve below the ganglion. The same procedure was repeated on the other side, extracting the sixth and seventh dorsal ganglia. Not a drop of cerebrospinal fluid escaped, the dura mater not being opened at all, as each sheath had been closed by the ligature before it was cut. Only three ganglia were resected as the patient was so debilitated and did not stand the chloroform well. The wound healed promptly and the man has been free from gastric crises since, but the preexisting lightning pains in the limbs and bladder symptoms still continue and the latter seem to have increased in intensity. A zone of anesthesia on the right has developed, corresponding to the ganglia excised. Sicard and Desmarest think that the lesions in tabes are too diffuse to permit much operative relief, but that intercostal neuralgia might be arrested by this operation and that this is its most promising field. Not long ago they performed a Franke operation to relieve the paroxysmal pain left from an intercostal zona. No benefit was derived, but they are convinced that this method of gangliectomy would have certainly cured their patient.

Semaine Médicale, Paris

November 13, XXXII, No. 46, pp. 541-552

64 Unequal Dilatation of the Pupil in Cerebral Hemiplegia. M. Klippel and M. P. Weil.

Archiv für Gynaekologie, Berlin

XCVIII, No. 2, pp. 221-512. Last indexed October 26, p. 1579

65 *Diagnosis of Pyelitis and Dilatation of Kidney Pelvis. (Zur Kenntnis der Pyelitis und Nierenbeckenerweiterungen während und ausserhalb der Schwangerschaft.) G. Schickele.
66 Histologic Research on Route of Infection of Tuberculosis of Uterine Adnexa. R. Keller.
67 Congenital Deformity. (Zur Teratogenie.) F. A. Kehrer.
68 *Thyroid Disease During Pregnancy. (Schilddrüsenerkrankungen in der Schwangerschaft.) W. Rübsamen.
69 Injection of Drugs into the Uterine Cervix Tissue in Treatment of Severe Hemorrhage with Acute Inflammatory Disease of the Adnexa. (Zur Behandlung schwerer Menorrhagien bei akut entzündlichen Adnexerkrankungen durch Portioinjektionen.) C. Koch.
70 Kidney in Pelvis. (Zur kongenitalen Dystopie der Niere.—Beckenniere.) R. Bretschneider.
71 *Eclampsia Result of Defective Elimination of Substances Produced to Nourish the Fetus. (Eclampsia gravidarum und Paresis puerperalis.) G. Persson.
72 Toxicity of Urine of Parturients. (Verhalten der Harngiftigkeit in der Schwangerschaft, in der Geburt und im Wochenbette, mit Berücksichtigung der Eklampsie.) P. Esch.
73 Pathologic Young Human Ovum. (Ein junges pathologisches menschliches Ei.) Todyo.

65. **Dilatation of Kidney Pelvis.**—Schickele says that roentgenoscopy of the kidney will frequently show that the pelvis and ureter may be distended without inflammation and that the pain is merely the result of accumulation of urine above some compressed point, generally in pregnant women. Treatment therefore need be only rest, removal of the compression, and copious drinking. In case of infection, injection of a local disinfectant is indicated. The main point he emphasizes is that a gynecologic examination should always accompany roentgenoscopy of the kidney pelvis. Ascending infection from the bladder is often due to some interference with the normal outward stream through the ureters, although blood-borne infection may be involved. This is suggested by the rapid occurrence and rapid disappearance of the symptoms and by discovery of the germs in the uterus secretion, blood and urine. The colon bacilli may also find their way into the right kidney pelvis through the lymphatics; constipation favors this, and if there is interference with the outflow of urine, pyelitis is almost certain to develop.

68. **Thyroid Disease in Pregnant Women.**—Rübsamen states that he found that 34.2 per cent. of 718 women in the maternity at Berne had goiter, that is, 246, while at Dresden during the same period, one year, there were only 0.29 per cent. He discusses this material from various standpoints, and also enlargement of the thyroid in the new-born. In the nine cases of congenital goiter the mothers all had goiter too. In several cases temporary enlargement of the goiter was observed in the newly born after difficult delivery.

71. **Eclampsia.**—Persson presents a number of arguments to sustain his theory that the eclampsia of pregnancy and puerperal paresis in cows are both due to the same cause, namely, retention of the substances which are intended for the nourishment of the fetus. When the child is born, this nourishment which has been passing through the placenta is suddenly diverted to the breasts, and unless these substances intended to

nourish the child find free outlet here, they accumulate and may have a poisonous action. The resulting disturbances are liable to develop whenever there is a disproportion between the supply of nourishing substances for the fetus and the capacity of the fetus to use them or, after delivery, incomplete elimination of the substances through the mammary glands. Treatment therefore should be to stimulate the production of milk and its outflow. This he has done by milking the breasts, massaging them and applying suction hyperemia by Bier's method. This is especially necessary in puerperal eclampsia. The aim is merely to render easier the normal physiologic function of the maternal organism following delivery. Anything that increases the viscosity of the blood should be strictly avoided, especially saline, while potassium iodid by rendering the blood more fluid has a very favorable action, so much so that he regards potassium iodid as almost a specific against eclampsia. He reports several cases in which headache, restlessness and other symptoms with pregnancy kidney warned of impending danger which he then warded off by potassium iodid. His views explain the benefit derived from operations on the breasts in treatment of eclampsia, while they show that even better results are possible by merely stimulating the natural function.

Berliner klinische Wochenschrift

November 11, XLIX, No. 46, pp. 2161-2204

74 *Metastatic Superficial Cancers. (Zur Klinik und Pathologie des metastatischen Krebses der Haut, im bes. des Hautnervenapparates.) M. Askanazy.
75 *Differential Diagnosis of Perforating Cancerous Gastric Ulcer. H. Strauss.
76 Severe Cerebral Symptoms in the Tuberculous Without Anatomic Findings. E. Querner.
77 Threshold Percussion of the Heart. (Das Individualisieren der Perkussionsintensität bei der Schwellenwertsperkussion —Goldscheider—des Herzens.) E. Mosler.
78 *Phenolsulphonephthalein Test of Kidney Functioning. J. Vogel.
79 *Experimental Roentgenotherapy of Tuberculous Peritonitis. E. Falk.
80 Action of Quinin on the Cornea. (Wirkung der China-Alkaloide auf die Cornea.) J. Morgenroth and S. Ginsberg.
81 Treatment of Extra-Uterine Pregnancy. E. Runge.

November 18, No. 47, pp. 2205-2252

82 Distribution of Paratyphoid Bacilli. (Paratyphus und paratyphusähnliche Bakterien mit bes. Berücksichtigung ihrer Verbreitung in der Aussenwelt und ihrer Beziehungen zu Mensch und Tier.) Weber and L. Haendel.
83 Inoculation Against Typhoid. (Aktive Typhusschutzimpfung.) G. Bessau.
84 *Inoculation Against Tuberculosis. (Heil- und Schutzimpfung der menschlichen Tuberkulose.) F. F. Friedmann.
85 Rupture of Bronchi During Compression of the Chest. S. Schönberg.
86 Paralysis of the Vocal Cords. (Habituelle Stimmbandlähmungen.) H. Gutzmann.
87 Normal Pregnancy and Childbirth with Persisting Urogenital Sinus. N. J. A. F. Boerma.
88 Estimation of Capacity of Heart. (Verwendung der Recklinghausen'schen Gleichung zur Bestimmung der relativen Grösse des Sekundenvolumens und der relativen Inhaltszunahme.) R. Kleissel. Commenced in No. 45.
89 Test for Sugar Content of Blood with Minute Amounts. (Zur Bestimmung des Blutzuckers.) O. Kraus and M. Adler.

74. **Metastatic Cancers of the Skin.**—Askanazy reports a case which he thinks is unique; the patient was a woman of 45, who six months after removal of a cancer of the breast developed numerous cancerous lumps in the skin involving nerve tissue. Each time the patient was able to foretell the development of a lump by a peculiar sensation in the skin. She located the pain exactly and within twenty-four hours a new hard nodule had developed on the point, about as large as a nut and not varying in size or consistency afterward. The nodules were most numerous on the trunk and scalp, and were identical in structure with the primary tumor.

75. **Differentiation of Gastric Cancer.**—Strauss gives the technical points useful for roentgenoscopic differentiation of ordinary gastric ulcer and a cancerous penetrating ulcer. They both require operative treatment but the discovery of metastases in case of cancer may be a contra-indication to an operation.

77. **Phenolsulphonephthalein Test of Kidney Functioning.**—Vogel joins in the chorus of commendation of Rowntree and Geraghty's method of estimating the functional capacity of the kidney. (The technic was described in THE JOURNAL, Sept. 2, 1911, p. 811.)

78. **Roentgenotherapy of Tuberculous Peritonitis.**—Falk's experimental research has demonstrated that exposure to the Roentgen rays is a powerfully effectual adjuvant to operative treatment of peritoneal tuberculosis. He is convinced that it would much enhance the benefit from a laparotomy in clinical cases.

84. **Inoculation to Prevent and Cure Tuberculosis.**—Friedmann's communication, read at the Berlin Medical Society, November 6, was summarized in the Berlin Letter in THE JOURNAL, December 7, p. 2081. Friedmann states that the remedy he is using is made from a strain of tubercle bacilli which have naturally very little virulence and which have been bred to practical avirulence for man. It has been applied to date (November 18) in 1,182 cases of tuberculosis of all kinds, and a single intramuscular injection has been given as a prophylactic measure to 335 children from one hour to 3 years old. In 90 per cent. of the children a preceding skin tuberculin test had elicited a positive response. Many times the dose suitable for human beings was injected into guinea-pigs without their showing the least ill effects or intolerance. When killed years later they were found entirely healthy. The avirulent bacilli had been totally absorbed and the animals were immunized thereby to a certain extent. The immunization thus induced was unable to resist severe artificial infection, but the animals survived on an average 363 days while the untreated controls lived only 110 days. The conditions of infection in man are never so menacing as in the artificial laboratory infection, and the outlook, he thinks, seems promising for permanent immunization by this means. He states further that the continuous thriving to date of the inoculated children testifies to the harmlessness of the method. He cited Bier, Schleich, Karfunkel and eighteen other physicians who have sent him tuberculous patients to be treated, and some of them regard the method as of great promise. [In 1904 Friedmann published an account of his efforts to immunize animals against tuberculosis by inoculation with tubercle bacilli from cold-blooded animals, supposedly avirulent for other species. His "turtle bacilli" preparations were also applied in the clinic, but clinicians soon abandoned this treatment on account of the abscesses that developed at the point of injection. An account of his work in this line was summarized in THE JOURNAL, 1904, xlii, 136, and xliii, 1909. Orth reviewed in *Virchows Archiv*, 1908, cxc, 1, the entire history to date of the method of treating tuberculosis by inoculation with supposedly avirulent tubercle bacilli. In the discussion that followed Friedmann's communication, Karfunkel, Schleich and K. Küster reported surprising benefit in all their cases and a cure in many, while some of the others he had cited were much less enthusiastic. Blaschko reported abscesses at the point of injection and the death of two patients. Citron remarked that Friedmann had not yet entered into details in regard to his work but to date had announced only the general principles on which it is based. He warned that as long as we are ignorant of means to control the virulence of bacteria, at any moment an avirulent virus may develop virulence in our hands and we be unable to prevent it. He cited Pasteur's experience in this line; the vaccination against chicken cholera which at first had proved so successful and seemed so promising, suddenly started severe epidemics as, for some unknown reason, the previously avirulent virus had become virulent. For these reasons, physicians have shrunk from applying this principle in therapeutics. Citron added that while there may not be so much cause for concern in the treatment by this means of severe tuberculous processes, yet that there is every reason to refrain from inoculating clinically healthy individuals with a living virus when they merely display a positive reaction to the tuberculin skin test. He urges greater caution for the future, at least until Friedmann has made it clear to the medical world what his inoculation material actually is. In his previous research Friedmann announced that he was using tubercle bacilli from cold-blooded animals—turtles—but he has not informed the world as yet whether his present remedy is from this source or not. He describes it merely as a living avirulent bacteria material of tuberculous nature (*Bakterienmaterial tuberkulöser Art*). F. Klemperer recapitulated the history of previous attempts to make a tuberculin for clinical use from bovine and turtle tubercle bacilli, stating that the turtle bacilli preparation had to

he dropped as its injection caused local suppuration at the point of injection. Goldscheider expressed regret that the reports on treatment with Friedmann's remedy were not accompanied by exact details; the mere general impression of subsidence of night-sweats, return of appetite, etc., are not sufficiently scientifically accurate to serve as the base for estimation of the condition before and after treatment. He urged the society not to go on record as tacitly approving the inoculation with living bacilli of such large numbers of young children merely on the ground of a positive tuberculin skin reaction. The discussion on Friedmann's communication at the Berliner med. Gesellschaft was announced to continue at the next meeting.]

Deutsche medizinische Wochenschrift, Berlin

November 7, XXXVIII, No. 45, pp. 2105-2152

90 *Salt and Water in the Diet. (Rolle des Kochsalzes und Wassers in der Ernährung.) H. Strauss.
91 *Treatment of Arteriosclerosis. A. Strubell.
92 Treatment of Articular Rheumatism. P. Junghans.
93 Experience in Aseptic and Antiseptic Treatment of Wounds. P. Sick.
94 *Tuberculosis of Long Bones. (Herdförmige Tuberkulose der Extremitätenknochen.) W. Böcker.
95 Bacteriology of Psoriasis. A. Menzer.
96 Copper Salts in Treatment of Superficial Cancer. (Epitheliombehandlung mit Kupfersalzen—Kupferlezithin.) A. Strauss.
97 Toxicity of Alien Albumin. (Giftwirkung artfremder Eiweissstoffe.) A. Stühmer.
98 *Impressions of America. (Nach dem Washingtoner Kongress.) A. Pröbsting.

90. Salt and Water in Dietetics.—Strauss states in the course of this general review of the importance of salt as a link in the chain of factors leading to dropsy, that abstention from salt benefits only when the retention of salt is due to parenchymatous nephritis. When the dropsy is of cardiac origin, the intake of salt has no influence on it, nor on gastric secretion, that is, in his experience he was never able to bring about a normal secretion of gastric juice in cases of anacidity, even by the most copious intake of salt. On the other hand, he has had cases in which large amounts of extremely acid stomach content were vomited repeatedly while the urine for weeks contained only traces of salt—a sign of the salt-starvation of the body. In some cases this salt-starvation from incessant vomiting of the hydrochloric acid in the stomach, with extreme motor insufficiency, entailed severe prostration and spasmophilia, subsiding only when large amounts of physiologic salt solution were administered by subcutaneous or rectal injection. The "salt fever" in young children is due more to the sodium *ion*, he thinks, than to the chlorin *ion*. In heart disease, abstention from salt is useful only as the patients are less thirsty and thus are not tempted to drink so much. It has been his impression that a tendency to uremia is more marked in nephritis without dropsy than in the dropsy cases; the retained fluids dilute the retained poisons and thus are beneficial. In diabetes insipidus, also, restriction of the salt intake is advantageous as it reduces the thirst and thus aids in combating the tendency to polyuria, and is useful also in polyuria from any cause and in the treatment of obesity. He agrees with Bunge that people take too much salt as a rule, but the harm comes from the resulting thirst which leads them to drink beverages which are not always conducive to health.

91. Treatment of Arteriosclerosis.—Strubell reiterates that in treatment of arteriosclerosis we cannot hope for more than slight improvement in a few of the symptoms, but that this is often supremely important. Chief of all is the encouraging influence of the physician, combating the depression and frequent tendency to suicide. Strubell does not approve of too stringent restrictions; age brings so many of itself that the arteriosclerosis need not add many more. The most important point is to ward off impending arteriosclerosis by hygienic living and diet, exercise, treatment of incipient tendency to kidney disease or gout, and avoidance of excesses of all kinds, with special care to prevent congestion in the abdomen. Plethora in the abdomen leads to overfunctioning of the vessels connected with the internal organs and thus brings undue strain on these vessels with resulting sclerosis. He thinks that much can be done in this way to ward off arteriosclerosis which otherwise is invited by the hurry and stress of modern life. Among the sedative measures he has found useful in arteriosclerosis are electric baths with the alternating current. Carbonated baths might be useful if the technic were perfected, but this is very faulty to date, he says, relating instances of direct harm from the carbonated baths now in vogue. (The importance of diet in warding off impending arteriosclerosis was emphasized in a recent editorial, p. 1976.)

94. Tuberculous Foci in Long Bones.—Böcker reports three cases to sustain his view that on the least suspicion of involvement of the joint in a focus in a long bone near a joint, operative measures are contra-indicated as a rule. He advocates the clearing out of the process only when the focus is certainly entirely outside of the capsule and there is no danger of infecting the joint if the focus is opened up. His cases show that a sequester may become encapsulated and the focus heal without further disturbance. The gait later in one such case was interfered with by a sequester as large as a cherry ensconced in the trochanter like the kernel of a nut; it had caused no trouble until after a fall on the hip. The patient was a boy of 9 and the symptoms then were assumed to be a flaring up again of an old healed process in the hip joint. When the sequester was shown by roentgenoscopy it lay so accessible that it was removed as a preliminary measure to the contemplated operation on the hip joint, but it proved to have been responsible for all the disturbance. Its removal was followed by a permanent disappearance of all symptoms. The nest of the sequester communicated with the joint, but its prompt removal after the trauma, before it had set up trouble inside the joint, arrested all further disturbance. The cavity left by its removal soon grew up with bone tissue. In the second case the clinical tests seemed to indicate that there was no connection between the focus and the joint but the operation proved that there was and infection followed. In a third case the suspicion of a connection deterred him from operating but the process healed permanently under conservative measures and time proved that the joint was intact. Whatever treatment is applied, he adds, potassium iodid is a valuable adjuvant. Bier recently demonstrated this by three patients cured by stasis hyperemia and potassium iodid internally in an unusually short time and with none of the complications so often observed under prolonged hyperemia treatment.

98. Impressions of America.—A rich crop of letters is sprouting every week in our exchanges, written by members of the large party of physicians who toured the United States at the time of the recent International Hygiene Congress. Pröbsting here states that people in Germany can form absolutely no conception of the public libraries in America or of the park systems in the large cities, especially in Chicago. Personal hygiene is more highly developed than in Germany, but public hygiene lags far behind. He deplores that the rich in Germany do not seem to feel that *richesse oblige* as well as *noblesse oblige*, the fact that so many charitable institutions in America are endowed by private means being to him the most wonderful thing about the medical institutions he visited. He adds that all the party found stimulation in the congress addresses and discussions and "the small exhibition" connected with it; Germany has much yet to learn, he remarks, in regard to the hygiene of children. He says of the Chicago stock-yards that here the division of labor—specialization—is seen in its extremest development; man is merely a machine. To the thinking observer it seemed actually a degradation of the Human.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXV, No. 3, pp. 403-588. Last indexed October 26, p. 1583

99 The Cammidge Reaction No Criterion of Pancreas Disease. J. Mayesima.
100 Experimental Research on Collateral Venous Circulation in the Kidney. (Zur Bildung venöser Kollateralbahnen in der Niere.) K. Isobe.
101 Persisting Choked Disk with Otitic Sinus Thrombosis. (Eine praktisch wichtige otogene Hirnkomplikation.) S. Auerbach and F. Alexander.
102 Eunuchoidism with Diabetes Insipidus; Two Cases. E. Ebstein.
103 Successful Operation for Bilateral Cysts in Cerebellum. (Fall von doppelseitigen mit Erfolg operierten Kleinhirncysten.) S. Auerbach and E. Grossmann.
104 *Peptic Duodenal Ulcer. G. B. Gruber.
105 *Resection of Middle Portion of Sagging Stomach. (Behandlung der Gastroptose durch keilförmige Resektion in der Pars media des Magens.) E. Schlesinger.

106 Case of Mikulicz' Disease. (Fall von symmetrischer Schwellung der Speichel- und Tränendrüsen, nebst Beteiligung des lymphatischen Apparates und der Haut.) E. Plate and F. Lewandowsky.
107 *Pulmonary Abscess and Bronchiectasia from Surgical Standpoint. F. Külbs.
108 *Favorable Influence of Intercurrent Infectious Disease on Chronic Disease. D. Gerhardt.
109 Histologic Research on Local Eosinophilia in Surgical Intestinal Disease. J. Oehler.

104. **Peptic Duodenal Ulcer.**—Gruber found peptic ulceration in 7.7 per cent. of 5,884 adult cadavers; 1.5 per cent. were in the duodenum, 6.7 per cent. in the stomach; 0.1 per cent. in the esophagus. He summarizes the clinical history of the 140 cases of peptic duodenal trouble; in 17 per cent. perforation was the cause of death. He calls attention anew to the connection of peptic ulcer with circulatory disturbances. In comparatively few of the cases had the duodenal ulcer been diagnosed during life. In 75 per cent. it had been overshadowed by some other affection. His experience shows that latent peptic ulcer occurs comparatively frequently in persons with arteriosclerosis, and may first manifest its presence by a severe open or prolonged occult hemorrhage. Especially in the elderly the possibility of this should not be forgotten.

105. **Operative Treatment of Sagging Stomach.**—Schlesinger gives an illustrated description of cases in which all internal measures had failed to relieve and he restored approximately normal conditions by cutting out the middle third of the stomach, uniting the stumps directly after this wedge-shaped resection, striving to have the stumps of about equal diameter.

107. **Operative Treatment of Pulmonary Processes.**—Külbs states that fourteen patients were cured of the twenty-four operated on for putrid abscesses of the lungs and three were much improved; seven died. He comments on the rapid subsidence of all symptoms after the operation and compares his experience with the 600 similar cases on record with a mortality of 17.5 per cent.

108. **Favorable Influence of Intercurrent Infectious Disease on Chronic Affections.**—Gerhardt reports six cases of this kind, but the benefit was only transient in all. In the first, a woman of 72 with intense trigeminal neuralgia had no pain in this region during the course of croupous pneumonia; pneumonia seemed also to abolish the pain of bilateral sciatica from a tumor in the sacrum in another case. In a third case of tuberculous ascites, the diuresis became remarkable during an intercurrent pneumonia and the ascites disappeared for the time being. In the other cases the symptoms of pressure on the brain from a tumor ceased during an attack of measles; an acute psychosis subsided temporarily during erysipelas; and a subchronic articular rheumatism caused no symptoms during an attack of follicular tonsillitis. In all the cases the pains kept off for a few days into convalescence; in none was the consciousness impaired. In connection with these experiences, he mentions Bloch's recent report of a case in which a parasitic affection healed when another part of the body had been inoculated with another parasite (*Achorion quinckeanum*).

Münchener medizinische Wochenschrift

November 5, LIX, No. 45, pp. 2433-2488

110 Contraction of Muscle and Swelling of Colloid. (Muskelkontraktion und Kolloidquellung.) J. Grober.
111 *Nephrectomy for Kidney Tuberculosis; Sixty Cases. (Dauerresultate von 60 Nephrektomien.) F. Suter.
112 *Septic Rheumatoid Disease. J. Schürer.
113 Injury of Eyes During Eclipse. (Augenbeschädigung durch die Sonnenfinsternis am 17 April, 1912.) J. Hoppe.
114 Local Application of Heat by Steam. (Lokale Wärmebehandlung durch Dampf.) H. v. Baeyer.
115 *Prevention and Treatment of Ankylosis of Joints. (Gelenkversteifungen.) K. Wahl.
116 Electric Treatment of Postoperative Paralysis of the Intestines. W. Pettenkofer.
117 Operative Cure of Myelitis from Compression by Tuberculous Process in the Spine. (Fall von operativ geheilter spondylitischer Kompressionsmyelitis.) A. Mendler.
118 *Treatment of Furunculosis and Carbuncles. A. Schüle and Heddäus.
119 *Typhoid Bacillus Carriers. (Aus der amtsärztlichen Tätigkeit.) B. Göhring.
120 Technic for Control of Roentgen Therapy. (Beaufsichtigung der Röntgentherapie seitens der Vorstände an Kliniken, Spitälern und Laboratorien.) R. Klenbock.
121 The Epiphanin Reaction. (Zur Weichardtschen Epiphaninreaktion.) Korff-Petersen and H. Brinkmann.

111. **Nephrectomy for Kidney Tuberculosis.**—Suter reports eighteen women cured by nephrectomy and ten men, with seven women and nineteen men materially improved. Five of the women passed through a pregnancy later. Only one of the five patients who have died since the nephrectomy succumbed to involvement of the lungs. The fact must not be forgotten that after the nephrectomy the patients are still tuberculous, and consequently that the general measures should not be omitted. He urges the general practitioner to pay special attention to the possibility of kidney tuberculosis in all obscure and spontaneous catarrhal affections of the bladder or kidney trouble. This is the only means to enable the recognition of the local tuberculous process in the kidney in the stage in which the entire disease focus can be removed. He cites two cases out of a wide experience in which the operation was refused, and although the kidney process apparently healed, yet complications developed in the other kidney or testicle with other serious features, confirming the dangers of leaving a tuberculous kidney in the body.

112. **Septic Rheumatoid Disease.**—Schürer found the *Streptococcus viridans* in three cases of what was apparently acute articular rheumatism, only that no benefit was derived from salicylic medication. He ascribes great importance to tonsillectomy in treatment of septic articular rheumatism.

115. **Treatment of Ankylosis of Joints.**—Wahl lays special stress on the prevention of ankylosis after phlegmonous processes involving the joints. He describes and illustrates a number of mechanical appliances which permit extension or rotation of the joints with other features to cure and prevent stiffness.

118. **Treatment of Furunculosis and Carbuncles.**—Schüle advises cauterizing the center of an incipient boil as the best measure for aborting it. He applies a little local anesthesia before the actual cautery. The first boil is generally too far advanced before it is seen, but the following one treated by prompt cauterization in its early stage is aborted and the crop is thus destroyed.

Heddäus emphasizes anew the great value of a deep circular incision around a carbuncle, down to the muscle or periosteum. This localizes the trouble, and the result in his cases has been striking. He here relates a case in a diabetic in which the benefit was noticeable, although the patient succumbed to the pre-existing complications.

119. **Prophylaxis of Epidemics.**—Göhring reports another instance of the way in which it is possible to nip a typhoid epidemic in the bud by search for bacillus carriers in the environment and training the carriers in the principles of prophylactic care. He also calls attention to the necessity for greater importance being paid to the negative findings on bacteriologic examination. In two recent cases the diagnosis of typhoid seemed certain except for the absence of typhoid bacilli from the stools, and necropsy revealed miliary tuberculosis.

Therapeutische Monatshefte, Berlin

November, XXVI, No. 11, pp. 769-840

122 *Protection of the Peritoneum Against Operative Infection. (Ueber Peritonealschutz.) O. Hoehne.
123 Injections of Calcium-Gelatin. A. Müller and P. Saxl.
124 Neosalvarsan. W. Heuck.
125 Hypophysis Extract in Obstetrics and Gynecology. J. Hirsch.
126 Study of Ergot. (Zur Kenntnis der Wirkung des p-Oxyphenyläthylamins.) M. Guggenheim.
127 *Quackery and Nostrums from the Legislative Point of View. (Die Bekämpfung der Kurpfuscherei und des Geheimmittelschwindels auf dem Boden landesgesetzlicher Verordnungen.) A. Springfeld.
128 *Aspirin and Acetylsalicylic Acid. H. Linke.
129 *Reform in Advertising Medicinal Articles. (Wünsche zur Reform des Arzneivertriebes.) W. Heubner. (Von der Arzneimittelkommission des D. K. für Inn. Med.)

122. **Protection of the Peritoneum.**—Hoehne has been much pleased with the results of the injection of 30 c.c. of a 1 per cent. camphorated oil before operations to induce a local protecting reaction on the part of the peritoneum as a barrier against general infection in abdominal operations in which asepsis cannot be counted on. In his experience with 234 "unclean" abdominal operations, including 113 uterine cancer cases, there were only twenty deaths and for only two of these was a suppurative peritonitis responsible. In both of

these cases the connective tissue in the small pelvis was probably the source of the peritonitis after removal of the uterine cancer. In the eighteen other fatal cases there was no peritonitis and necropsy revealed the desired reaction to the camphorated oil. It permits the abdomen to be sutured, and in the 350 cases in which he has applied the ante-operation oil treatment there was no sign of injury from it in any instance. Recent reexamination of 150 patients showed the absence of adhesions or of any signs of ileus. In case of much infection it might be wise to follow the operation with a second smaller injection of oil. He has been applying the method for three and one-half years and states that his experience is confirming more and more that the reaction localizes the infection and destroys the germs in the abdominal cavity by mobilizing the exudation forces, the strength of which depends on the capacity of the peritoneum for reaction, the choice of the irritating substance and the duration of the irritation. The protection is confined to the germs in the abdominal cavity and does not exclude infection from the soft parts. He does not think that injections after the operation answer the purpose at all, as the reaction comes too late, but it might prove a useful adjuvant.

127. **Quackery and Nostrums.**—Springfeld reviews the legislation on these subjects in Germany and the history of the measures that have been proposed against them, especially the agitation for a central standardizing office for new remedies. He states that if the nostrum business could be eradicated millions would be saved to the people, sufficient to finance all the wished-for reforms to stamp out tuberculosis. By checking the flood of quackery also, more human lives would be saved than by the national social insurance.

128. **Aspirin and Acetylsalicylic Acid.**—Linke reports that those who have found that non-proprietary brands of acetylsalicylic acid contain free salicylic acid, while the proprietary brand "aspirin" is free from it, obtained their results through the employment of faulty chemical methods. Linke states that those interested in aspirin admit that, depending on the peculiarity of the patient, both "aspirin" and acetylsalicylic acid produce gastric disturbances, which disturbances are not uncommon, according to Linke's own experiences. As an acknowledgment of this, it is reported that the Farbenfabriken are attempting to introduce a substitute for "aspirin" which is said to be especially useful where aspirin is not well tolerated. Linke has found acetylsalicylic acid, von Heyden, to be the equal of aspirin, both chemically and therapeutically, and concludes with the assertion that a good acetylsalicylic acid, under the same conditions and with the same patient, acts as promptly and efficiently as aspirin—which is a good grade of acetylsalicylic acid and nothing more—and that both in a given case produce equal gastric disturbances. (See THE JOURNAL, Nov. 2, 1912, p. 1642.

129. **Reform in Advertising Medicinal Articles.**—The committee appointed by the German Congress for Internal Medicine—which is entitled to be called the German Council on Pharmacy and Chemistry—announces that it has recently elected six consulting members in addition to the six regular members. The regular members are Penzoldt, Gottlieb, W. Heubner, G. Klemperer, A. Schmidt, and Spatz, nearly all editors as well as internists. The consulting members are W. A. Puckner, as representative of the Council on Pharmacy and Chemistry of the American Medical Association; Mannich of Göttingen, as representative of scientific pharmacy; Dippe of Leipsic, as representative of the German Aerztevereinsbund, and Salzmann of Berlin, as representative of the German Apothekerverein, O. Heubner of Berlin as adviser in pediatric and Bettmann of Heidelberg in dermatologic matters. In addition, E. Fischer, Thoms and His are a special advising council. The commission has installed its office at Nikolausberger Weg 23, Göttingen, in charge of Dr. O. Loeb. All questions and communications should be sent to this office. The commission is soon to publish a second list to contain the approved articles. The list B, the previously negative list, will follow later. In addition to the publication of these lists, the organized medical press has agreed to submit all advertisements to critical inspection before accepting them, so that a number of advertising abuses will be eliminated at once. It is hoped by the committee that this self-regulation, inside the profession, will gradually lead to a reduction in the grossest abuses. Further details in regard to what is practically the analogue in Germany of our own Council on Pharmacy and Chemistry, are given in the current Berlin Letter, December 7, p. 2081.

Wiener klinische Wochenschrift, Vienna

November 7, XXV, No. 45, pp. 1773-1816

130 Psychogenic Disturbances in Children. (Ueber den Mechanismus psychogener Erkrankungen bei Kindern.) F. Hamburger.
131 Protozoa in Chronic Pemphigus. B. Lipschütz.
132 *Tetany and Osteomalacia. (Zur Pathogenese der kalzipriven Osteopathien.) J. Bauer.
133 Myomas and Primary Sarcomas of the Stomach. A. Löwit.
134 The Campaign Against Tuberculosis. (Vorschläge zur Bekämpfung der Tuberkulose.) M. Winter.
135 The Municipal Pharmacies in Italy. P. Martell.

132. **Tetany and Osteomalacia.**—Bauer reports a case of tremor followed by tetany, occurring in the course of nephritis. He thinks the irritation of the nervous system by the uremic poison and its action further on the parathyroids explain the symptoms observed. In another case the tetany developed during osteomalacia in a woman of 27. The osteomalacia was independent of a pregnancy and was not influenced in any way by two following pregnancies, but with the tetany it passed into a latent stage with exacerbations later. He discusses the relations between osteomalacia, tetany and rachitis. The case is especially interesting on account of the remarkable benefit from epinephrin treatment. The causal connection of the tetany and osteomalacia was sustained by the simultaneous appearance and subsidence of the symptoms of both again and again. Three times the symptoms of both entirely subsided under the epinephrin treatment, and three times they returned again together, indicating renewed treatment.

Zentralblatt für Chirurgie, Leipsic

November 16, XXXIX, No. 46, pp. 1569-1600

136 *Improved Technic for Gastrostomy. (Neues Verfahren für die Gastrostomie und Oesophagoplastik.) W. Röpke.

136. **Improved Technic for Gastrostomy.**—Röpke has applied the technic recently proposed by Jianu for making a tube leading into the stomach, utilizing for the purpose a long narrow flap from the wall of the greater curvature of the stomach. Röpke modified Jianu's technic a little and states that the method avoids all the disadvantages of other technics while retaining their good points. The pedunculated flap is cut from the lower part of the greater curvature up toward the fundus. The tube thus formed is brought out through the pectoral muscle below the left clavicle, which effectually prevents seeping of the stomach content.

Zentralblatt für Gynäkologie, Leipsic

November 16, XXXVI, No. 46, pp. 1529-1568

137 The Streptococci in the Vagina of Parturients. (Bedeutung der Streptokokkenbefunde im Vaginalsekret Kreissender.) K. W. Jötten.
138 *Ileus During Pregnancy or the Puerperium. P. C. T. Van der Hoeven.
139 Hypophysis Extract in Treatment of Amenorrhea. R. Hofstätter.

138. **Ileus During Pregnancy.**—Van der Hoeven has compiled from the literature ninety-four cases of this kind which he tabulates, the records showing that absolutely no cause for the ileus could be found in from fifteen to twenty of the cases, even at necropsy. He then offers an explanation for the development of the ileus as he encountered it in a few cases. The gravid uterus in the open abdominal cavity does not press on the intestines enough to obstruct them, but it is possible that there is pressure on the intestines in the pelvic inlet. When the lower part of the uterus is pushed down into the pelvic inlet from above or dragged down from below, the rectum may be compressed at this point by the enlarging uterus. If the vagina is elastic it yields when the pregnant uterus grows up out of the same pelvis, which occurs about the third or fourth month, but if it is not elastic, the vagina pulls on the uterus and holds it down in the pelvic inlet, and thus conditions are readily induced which lead to ileus. A mere laparotomy will not correct the condition and the cause even then may escape detec-

tion. In the cases on record he has found five in which conditions seemed to indicate this explanation of the ileus. These conditions may also be responsible for the tendency to constipation in pregnant women.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 5, XXXIII, No. 133, pp. 1393-1400

140 *Italy's Freedom from Cholera This Year. (Perche quest'anno non abbiamo avuto il colera?) E. Bertarelli.
141 Efficacy of Milk of Thyroidectomized Goats in Exophthalmic Goiter; Two Cases. (Latte steroidato nel morbo di Basedow.) A. Cantieri.

140. Italy's Freedom from Cholera This Year.—Bertarelli confesses that, with many others, he was sure that 1912 would witness the continuation of last year's epidemic of cholera in Italy which was responsible for 7,000 deaths, according to the official statistics. But the country has been free from cholera up to November, and this confirms, he says, the comparative harmlessness of cholera germ-carriers and the efficacy of the prophylactic measures applied, although they were far from thorough in some places. They served, however, to educate the public in personal hygiene, and to show how with a little good will and common sense it is possible to ward off cholera. He remarks that germ-carriers are not a "new" danger; they must have existed always although they were not discovered until recently. Theoretically, epidemics should spring up in the track of the hordes of germ-carrying globe-trotters, and the fact that this does not occur confirms anew the extreme paucity of our knowledge in regard to the biology, etc., of cholera germs.

Riforma Medica, Naples

November 2, XXVIII, No. 44, pp. 1205-1232

142 The Venous Pulse in Fatigue. (Il polso venoso nell'uomo affaticato.) L. Ferrannini and R. Scalia. Commenced in No. 43.

Semana Medica, Buenos Aires

October 17, XIX, No. 42, pp. 753-808

143 Spontaneous and Criminal Abortion from Clinical Standpoint. E. Zarate.
144 Influence of Spleen on Gastric Secretion. (Influencia del bazo en la formacion de los fermentos gastricos. I.) F. L. Soler and L. F. Madero.
145 Eruption from Iodid Poisoning. (Penfigo yodico.) P. Ghiso.

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November 6, LV, No. 45, pp. 1293-1328

146 *Laceration of the Dura Mater of the Child During Delivery. (Om Bristningen i Dura mater opstaaede hos nyfødte under Fødslen.) L. Meyer and E. Hauch.

146. Laceration of the Dura Mater During Birth.—Meyer and Hauch have made a special study of this subject since Beneke recently called attention to the importance of laceration of the tentorium in the pathology of the new-born. In order to study this laceration the skull has to be opened with special precautions, as they show with several illustrations. Examination of the skulls of sixty-four infants born dead or dying soon after birth at the Copenhagen maternity, showed rupture of the dura in twenty-eight cases. The laceration was the cause of death in only twelve of the cases, the proportion was thus 1 per cent. in the total 1,200 deliveries during the six months, with sixty-four of the children stillborn or dying soon after birth. The tentorium is very rich in blood vessels and the outcome depends on the extent of the laceration and size of the vessel involved.

In thirteen of the children the rupture was probably the cause of death, including six stillborn, one delivered in breech presentation, and five in vertex presentation, all difficult forceps cases. In fifteen of the cases the laceration was without clinical significance. In the seven children who were born alive with serious rupture four died almost at once; one was born spontaneously in vertex presentation four weeks before term and both tentorium and falx were completely torn, with great hemorrhage. Another of the children in this group was syphilitic, and there was partial laceration on both sides. One child was born a month before term and the longitudinal sinus was found ruptured, with great hemorrhage. The findings in each of the cases of fatal laceration of the dura are illustrated and the details tabulated. They demonstrate that the rupture occurs during spontaneous delivery only in small, prematurely born children or macerated fetuses or fetuses which have died just before birth. When rupture occurs in a well developed child there has always been some preceding difficult obstetric manipulation or the rupture is of insignificant extent. The head of a prematurely born child may not be able to stand the strain of even a spontaneous delivery. In a recent case a child was being delivered by cesarean section and just as the chin and mouth were passing through the opening in the uterus a violent contraction occurred, compressing the head for a few seconds, but releasing it again at once. The child was small (2,150 gm.), but at term. It died ten hours later and the tentorium was found torn on both sides with considerable hemorrhage. During the period in question forceps were applied in sixty-six cases but this was a simple matter in all but twenty. In this latter group the forceps got a good hold in twelve cases and no lacerations occurred, while in the eight cases in which the application of the forceps met with some difficulty there was rupture in every instance. Pressure on the head from the front backward seems to be the most dangerous in this respect. The falx is not so rich in vessels as the tentorium and consequently laceration here is less serious. (A previous communication on this subject was summarized in THE JOURNAL, June 15, 1912, p. 1888.)

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October 31, LXXIV, No. 44, pp. 1601-1632

147 Digitalis Preparations. (Digitalisstoffer, Digitalispræparater, frisk Digitalisinfus.) A. Oigaard.
148 Three Cases of Sclerosis in Patches in One Family. (3 Tilfælde af Sclerose en plaques.) E. Clausen.

November 7, No. 45, pp. 1633-1668

149 *Nervous Disturbances from Cervical Ribs. (Nervelidelser som Følge af Halsribben.) K. H. Krabbe.

149. Nervous Disturbances from Cervical Ribs.—Krabbe reports six cases which emphasize anew the variability and severity of the clinical disturbances that may be induced by supernumerary ribs in the neck. In two cases the functioning of the arm was interfered with and there was pronounced scoliosis; the latter is a frequent finding with cervical ribs. Another patient was a man whose left arm and leg had always shown some atrophy. At the age of 30 the left arm developed gangrene, compelling amputation before the cervical ribs—the cause of the vascular disturbance—had been discovered. The symptoms suggested syringomyelia in some respects. In the other cases the trouble was in the peripheral nerves; in one case the course was so acute and painless that poliomyelitis was suggested, while in the others the trouble came on gradually and the pain became so intense that life was unbearable. The diagnosis in one case had been a spinal tumor; roentgenoscopy was negative and no benefit was derived from drugs and electricity. After seven months of various measures, the patient, a girl of 22, was presented at a meeting of neurologists and the diagnosis discussed, some inclining to accept a spinal tumor, others syringomyelia, others Klumpke's neuritis or a neuritis with functional disturbances. The first sign of trouble had been noticed at the age of 12, but the pains did not develop until five years later. The possibility of cervical ribs was mentioned but discarded owing to the negative Roentgen ray findings. On assumption of syringomyelia, roentgenotherapy was applied but proved futile as also all medication. After six months of agonizing pain the patient insisted on an operation of some kind, and roentgenoscopy then with special regard to the neck revealed the cervical ribs and prompt recovery followed the operation for their removal. One lesson taught by the martyrdom of this patient is that roentgenologists seldom think of the possibility of cervical ribs; in this case the anomaly was at the seventh cervical vertebra, the rib being 3 cm. long, too small to be palpated and not evident on roentgenoscopy until specially sought for. A special feature of the case is that a sister of this patient also had cervical ribs causing trouble, and three brothers had a slight tendency thereto, while the seven other children in the family were free from it. Krabbe's six patients were between 16 and 34, and the cervical ribs had caused no disturbances until from one to ten years previous.